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71 Applicant: **Moba Holding Barneveld B.V.,
Stationsweg 117, NL-3771 VE Barneveld (NL)**

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72 Inventor: **van Ginkel, Mannes, Amersfoortsestraat 79,
NL-3772 CH Barneveld (NL)**
Inventor: **van 't Slot, Kornelis, Heegderweg 5,
NL-3888 MC Uddel (NL)**

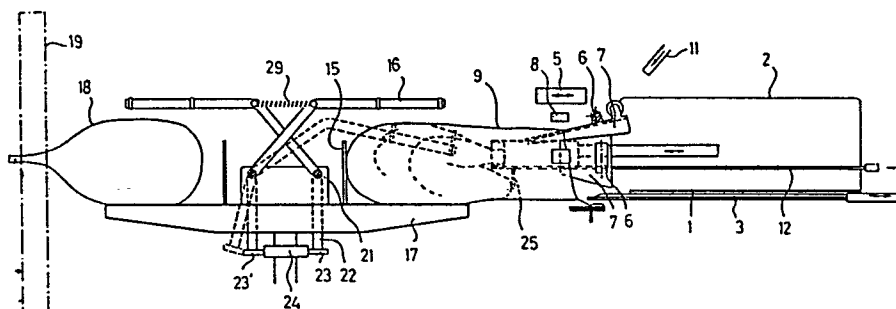
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74 Representative: **De Wit, Gerard Frederik, Ir. et al,
Octrooi- en Merkenbureau De Wit B.V. Breitnerlaan 146,
NL-2596 HG Den Haag (NL)**

64 **Device for filling a bag with a fowl.**

67 A device for filling a bag with a fowl having a stack of bags (10), means (11) for inflating the uppermost bag of the stack and a turntable (17) having an interruption for letting pass the bag from the stack to a position above said turntable, which al-

lows for a short machine construction, and preferably a cam (24) that is coaxially mounted with the turntable and can be rotated to and fro for controlling retaining members on said turntable.



Device for filling a bag with a fowl.

The invention relates to a device for filling a bag with a fowl and closing the bag, provided with a stack of bags, a device for stretching the uppermost bag of the stack of bags, a device for filling the bag by pushing a fowl through
5 a dressing device into said stretched bag and a device for closing the bag containing said fowl.

The invention aims to provide an efficacious compact design of such a device, by reason of which the work length can be
10 smaller than hitherto and a high working speed is possible.

With respect to the constructive length it is pointed to the fact that such devices need a certain length in order to be able to apply the bag. This length of the device can be used
15 double by providing according to the invention that the device for stretching the said bag is able to support said bag, a turntable being present to support said bag after it has received said fowl, said turntable having an interruption for letting pass said uppermost bag at its movement from the
20 stack toward the position in which it is stretched.

Moreover herewith is attained that, after the turntable has been rotated, the time necessary for closing the bag is not added to the time necessary to stretching and filling of
25 the bag, so that the capacity of the device is increased for a considerable extend.

When applying the invention preferably it is provided that the stack of bags is attached such, that the inflated upper-
30 most bag extends itself completely above the turntable.

Herewith in a very simple way is realized that the bag is located above the turntable so that the latter can always without any disturbancy be placed below the inflated bag. Such bag stock attachments are known per se and need not
35 to be further explained.

The invention provides further that in a simple way a control is obtained for a retaining device for the bag on

the turntable. Accordingly it is according a further elaboration of the invention provided that members for retaining the bag on the turntable are present, which members cooperate with a cam, wherewith when rotating the turntable a movement
5 with respect to the cam occurs and the cam itself can be moved too.

Hereby is attained that with extremely simple means the retaining members on the turntable can be served when the
10 turntable is at a stand-still and are not submitted to positional changes when the turntable is rotated without the need of making an electrical or pneumatical connection with the turntable, which exigences always a relatively vulnerable whole, such as a contactor ring construction
15 and separate prime movers.

According to a further elaboration of this idea it is provided that the cam is coaxial with the turntable and carries out a first rotational movement for letting the
20 retaining member grip the bag, in that following to this the turntable carries out a rotational step wherewith no change in the position of the retaining member occurs; in that following to this the cam in the rotational direction of the turntable carries out a second rotational movement
25 without further change of the retaining member; in that following to this the turntable carries out a second rotational step which together with the first rotational step encompasses 180° and in that following to this the cam carries out a third rotational movement which suppresses the
30 retainment of the bag, wherewith the first and third rotational movements ^{of the cam} together are equal but opposite to its second rotational movement.

An elaboration hereof that in practice functions well
35 consists in that the cam has a region of at least a quadrant with a first radius opposite to this a region of 180° with a second radius and there between transitional regions. Herewith it is further possible to use the same cam for two retaining members each one of which cooperates with one bag
40 by controlling these retaining members by follows members diameterrally positioned with respect to said cam.

In the following the invention is further elucidated on hand of the drawing, in which:

- Figure 1 shows a plan view of the invention in the
5 starting position;
Figure 2 is a side view of the invention in the starting position;
Figure 3 corresponds to fig. 2 but shows a further stage;
Figure 4 shows a still further stage in the same manner
10 as fig. 2 and 3;
Figure 5 shows a still further stage;
Figure 6 schematically shows a cross-section over the line VI-VI of fig. 4;
Figure 7 serves to elucidate a control cam; and
15 Figure 8 shows a number of graphs in which the workings of several parts of the invention are shown in mutual correlation.

In the drawing reference 1 indicates a deposit gutter
20 having slightly converging vertical walls 2 and centrally below its bottom a bottom plate 3 movable in its longitudinal direction. As more specifically and schematically has been shown in fig. 2-5 inclusive the bottom plate 3 can be moved by a driving member 4, which is for instance a pneumatical
25 cylinder and has not further been detailed in the drawing.

In fig. 6 the cross-sectional shape of the deposit gutter 1 and the bottom plate 3 as well as a guide 3' in which the bottom plate 3 is guided, are shown.

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A driving member 5 that is executed in triple serves to actuate stretch members 7. Each stretch member 7 is formed by a pivotable sheet having a pivot shaft 6 and is pivotable from the position shown in fig. 1 and 2 into the
35 position shown in fig. 3, in which each of them clamps a bag 9 between itself and a fixedly mounted counter member 8.

The bag 9 is the uppermost of a stack 10 of bags which by means of pressurized air from a nozzle 11 is brought in
40 the shown position and therein fixed by the stretching

members 7.

Synchronous with the actuation of the driving members 5 for the stretching members 7 also the driving member 4 for the bottom plate 3 has executed its activity, so that the bottom plate 3 has taken the position shown in fig. 3.

Following to this the pushing members 12 and 13 which are movable in the longitudinal direction of the bag become active which can be carried out pneumatically, wherewith the member 12 presses against the body of the fowl. The pushing member 12 consists of a horizontal plate with at its lower side somewhat retracted a transverse sheet 25 and at its upper side in the middle a vertical baffle 26 extending in the longitudinal direction. The member 13 has at its front side two recesses 14, by reason of which this member 13 is adapted to push the legs of the fowl and to lay them against the body of the fowl. A slit 27 in the member 13 enables to accomodate the baffle 26.

20

As more specifically appears from fig. 4 the members 12 and 13 are completely shifted into the bag, when the latter at its outer side is supported by an abutment member 15. Therewith the bottom plate 3 is following to this retracted, so that the position of fig. 5 comes to existence. In this position a retaining member 16 is pressed on the fowl, as has been shown in interrupted lines in fig. 5, the fowl being supported by a turntable 17. After this the turntable 17 is rotated until the bag with the fowl is in the position indicated with reference 18 in which position the bag is closed with a closing device 19 that has not further been detailed.

An important advantage of this construction is, that the time necessary for stretching and filling of a bag forms a first cycle and the time necessary for closing the bag a second one, which increases the working speed of the complete device in a considerable extend.

A further advantage of the shown construction is, that the wind blowing from the nozzle 11 can bring a bag of the stack of bags in the position desired for stretching, wherewith this happens at the moment that the turntable 17 is in the 5 position shown in fig. 1 with interrupted lines, so that the advantage is obtained that the bag is not hampered by the turntable when bringing the bag in the desired position, after which, when the turntable is in the position shown in solid lines in fig. 1, it can serve the purpose of supporting 10 the bag and the fowl, when the bottom plate has been retracted therefrom.

In fig. 6 a cross-section through the bottom plate 3 has been shown, wherewith it is visible that between this plate 15 and the bag 9 two passage gutters 20 for air are present at the lower side. This means that when the fowl is shifted over the bottom plate into the bag the air from the front side of the bag can always easily be vented through the gutters 20, whereas nevertheless, after the plate 3 has been 20 retracted, a good tight enclosure of the bag around the fowl can be realized. The stretching members 7 are also schematically shown in fig. 6 as well as the counter members 8 and the pushing members 12, 25, 26 and 13, 14. Further is visible that the uppermost stretch member 7 at its inner side has 25 guiding ribs 28.

By rotating a control cam 24 the brackets 16 and 16' are actuated because they are via rotating shafts 21 connected to actuating arms 22 with at their ends follow rollers 23' 30 and 23 cooperating with said cam 24. Tension springs 29 keep the follow rollers 23 and 23' in engagement with the cam 24.

The follow rollers 23 and 23' and the cam 24 have been shown again in fig. 7. Therewith the cam has been shown in the 35 position of fig. 3 of the drawing. This cam has a non shown control member which can cause it to rotate. With a first rotational movement the cam moves 30° counter clockwise by reason of which follow roller 23 sways inwardly over the cam part a1, so that bracket 16' (see fig. 2) moves from 40 the position of fig. 3 into that of fig. 4.

Therewith follow roller 23' runs over cam part b1 of cam 24 and consequently the related bracket 16 is not swayed. The mutual position of the cam and follow rollers is maintained until the position of fig. 5 is reached, thus the fowl being
5 completely shifted forward and the bottom plate 3 retracted, wherewith the stretching members 7 are still kept in their opened position by the pushing member 13. Now the cam 24 is rotated 60° further counter clockwise. Then the follow roller 23 cooperates with the part a2 of the cam 24,
10 wherewith no variation in radius occurs and consequently no swaying movement of the related bracket. The follow roller 23' runs over cam part b2 which means an increase of radius, so that the corresponding bracket 16 is swayed downward. Now the turntable 17 is rotated over 90° , where-
15 with the follow roller 23' runs over cam part b3 and follow roller 23 over cam part a3. None of these cam parts show a variation of radius, so that no swaying movement occurs. After this the cam is rotated 90° clockwise, by reason of which follow roller 23 runs over cam part a3 but
20 now in opposite direction, and follow roller 23' over cam part b3, also in opposite direction. Following to this the table rotates still 90° further, so that the starting position is taken again, but with exchange of the brackets and follow rollers 16, 16' and 23' and 23 respectively.

25 The working of the device in the following is further elucidated on hand of the time graphs of fig. 8. In this figure the vertical axis is the time axis, wherewith as reference the positions of the several figures are indicated
30 and the graphs are indicated with the references of the parts to which these graphs relate. These are the nozzle 11; actuating members 5 and 4 which are always actuated together; the cam 24; the turntable 17 and the pushing members 12 and 13.

35 In fig. 8 is started from the position of fig. 3, because in that position depositing of a fowl in the deposit gutter 1 occurs. After this an actuating mechanism is activated by reason of which a complete cycle is carried out until the
40 position of fig. 3 is reached again.

Deposing a fowl needs not to happen with special care, provided the ends of the legs are located at both sides of the baffle 26 on the horizontal plate of the pushing member 12 and the fowl further is located such, that its breast-bone comes between the guide ribs 28.

After starting the device the pushing members 12 and 13 are shifted toward the left, wherewith initially they move equally but the pushing member 13 receives at the end of its stroke a higher velocity and overtakes the pushing member 12 until the position of fig. 4 is attained, in which the front edges of the pushing members 12 and 13 almost coincide.

Because the front edge of 12 is located on a certain height, in practice some cm above the deposit gutter, this edge engages the back side of the upper parts of the legs and the body of the fowl. This causes in combination with the baffle 26 the fowl to be pushed straight forward, which cause is also enhanced by the vertical sheet 25.

The final position of the pushing members 12 and 13 has to be such, that a good dressing of the bird is obtained, wherewith for chickens it generally is preferred that the ends of the legs are located near the front edge of the pushing member 12. This may, however, be different for other types of fowl.

When starting the device the cam 24 is rotated 30° counter clockwise, by reason of which the retaining member 16 sways upwardly into the position of fig. 4. After attaining the position of fig. 4 the actuating members 5 are retracted and the stretching members 7 can sway back, wherewith, however, the pushing members 12 and 13 prevent that they sway already completely back into the position of fig. 1 and 2.

In the same time the driving member 4 and consequently the bottom plate 3 are retracted, by reason of which some room in the bag is created and the pushing members 12 and 13 can

move a little further on. The graph for these members will in that instance lay anywhere between the solid and the interrupted lines 12 and 13 in fig. 8.

- 5 Starting from the position of fig. 5 the cam 24 is rotated 60° counter clockwise, so that the retaining member 16 takes the position indicated with interrupted lines. The end of this movement is in fig. 8 indicated with fig. 5'. Now ~~the~~ retracting of the pushing members 12 and 13 begins.
- 10 When they are sufficiently retracted to enable rotation of table 17 without a too strong hindrance caused by the pushing members 12 or 13 and /or the stretching members kept open by them, the table 17 is rotated a quarter of a revolution as follows from line 17 in fig. 8. Therewith the
- 15 preceding bag 18, which has been closed by a not further detailed closing device 19, engages an abutment and wipe off member 30 and falls from the table 17. With this rotational movement of the table 17 the bag 9 is retained by bracket 16. After this rotational movement over 90° ,
- 20 wherewith the bag is tired away from the bag stack 10, as is known per se, the nozzle 11 becomes active. After this the next bag of the stack 10, is brought in the position of the bag 9 in fig. 1 and 2, wherewith the table 17 rotated over a quarter of a revolution does not hinder the
- 25 bag.

After the first movement of the turntable 17 the cam 24 rotates 90° clockwise, vide graph 24. This does not cause any positional change of the retaining members 16 and 16'.

- 30 Following to this the turntable 17 rotates again 90° , wherewith as has been elucidated earlier on hand of fig. 7 again no positional change of the retaining members 16 and 16' occurs. In the mean time the pushing members 12 and 13
- 35 have arrived in their retracted positions, wherewith it will be clear that the accelerated movement of 13 indicated in fig. 8 in the final part of its back stroke is not necessary: each movement with which 12 and 13 are in time in their starting positions is allowable.

Now the device is in the position of fig. 1 and 2, but with a rotation of the turntable over 180° . Now the next fowl can be deposited into the deposit gutter and after activation of the actuating mechanism the whole cycle will be repeated.

Claims:

1. Device for filling a bag with a fowl and closing the bag, provided with a stack of bags (10), a device (7) for stretching the uppermost bag (9) of the stack of bags (10), a device (12, 13) for filling the bag by pushing a fowl
5 through a dressing device (7) into said stretched bag (9) and a device (19) for closing the bag containing said fowl, characterized in that the device (7) for stretching the said bag is able to support said bag a turntable (17) being present to support said bag after it has received said fowl,
10 said turn-table having an interruption for letting pass said uppermost bag (9) at its movement from the stack (10) toward the position in which it is stretched.
2. Device according to claim 1, provided with a blow
15 nozzle (11) to lift the uppermost bag of the stack of bags, characterized in that the stack of bags is mounted such that an uppermost bag (9) that has been inflated by the said nozzle is always completely above said turntable.
- 20 3. Device according to claim 1 or 2, characterized in that the closing device (19) is located diametrically opposite the devices for stretching (7) and filling (12,13) the bag, wherewith a driving means for the turntable carries out two steps for each bag which steps together encompass 180° .
25
4. Device according to one of the preceding claims, characterized in that the turntable (17) is provided with an abutment (15) to hold up the bag when it is filled.
- 30 5. Device according to one or more of the preceding claims, characterized in that members (16,16') for retaining the bag on the turntable are present, which members cooperate with a cam (24), wherewith when rotating the turntable (17) a movement with respect to the cam occurs and the cam itself
35 can be moved too.
6. Device according to claim 5, characterized in that the cam is coaxial with the turntable and carries out a first

rotational movement (b2 engaging 23') for letting the retaining member (16) grip the bag, in that following to this the turntable (17) carries out a rotational step wherewith no change in the position of the retaining member
5 occurs (23' engaging b3); in that following to this the cam in the rotational direction of the turntable carries out a second rotational movement without further change of the retaining member (23' again engaging b3); in that following to this the turntable carries out a second
10 rotational step which together with the first rotational step encompasses 180° and in that following to this the cam carries out a third rotational movement (23' engaging a1) which suppresses the retainment of the bag, wherewith the first and third rotational movements ^{of the cam} together are equal
15 but opposite to its second rotational movement.

7. Device according to claim 6, characterized in that the cam (24) has a region (b3) of at least a quadrant with a first radius opposite to this a region (b1, a3, a1) of 180° with a second radius and there between transitional
20 regions.

8. Device according to claim 7, characterized in that two retaining members (16, 16'), each for cooperating with one bag (9, 18) are present, controlled by follow members (23',
25 23) being diameterrally positioned with respect to said cam (24).

FIG. 1

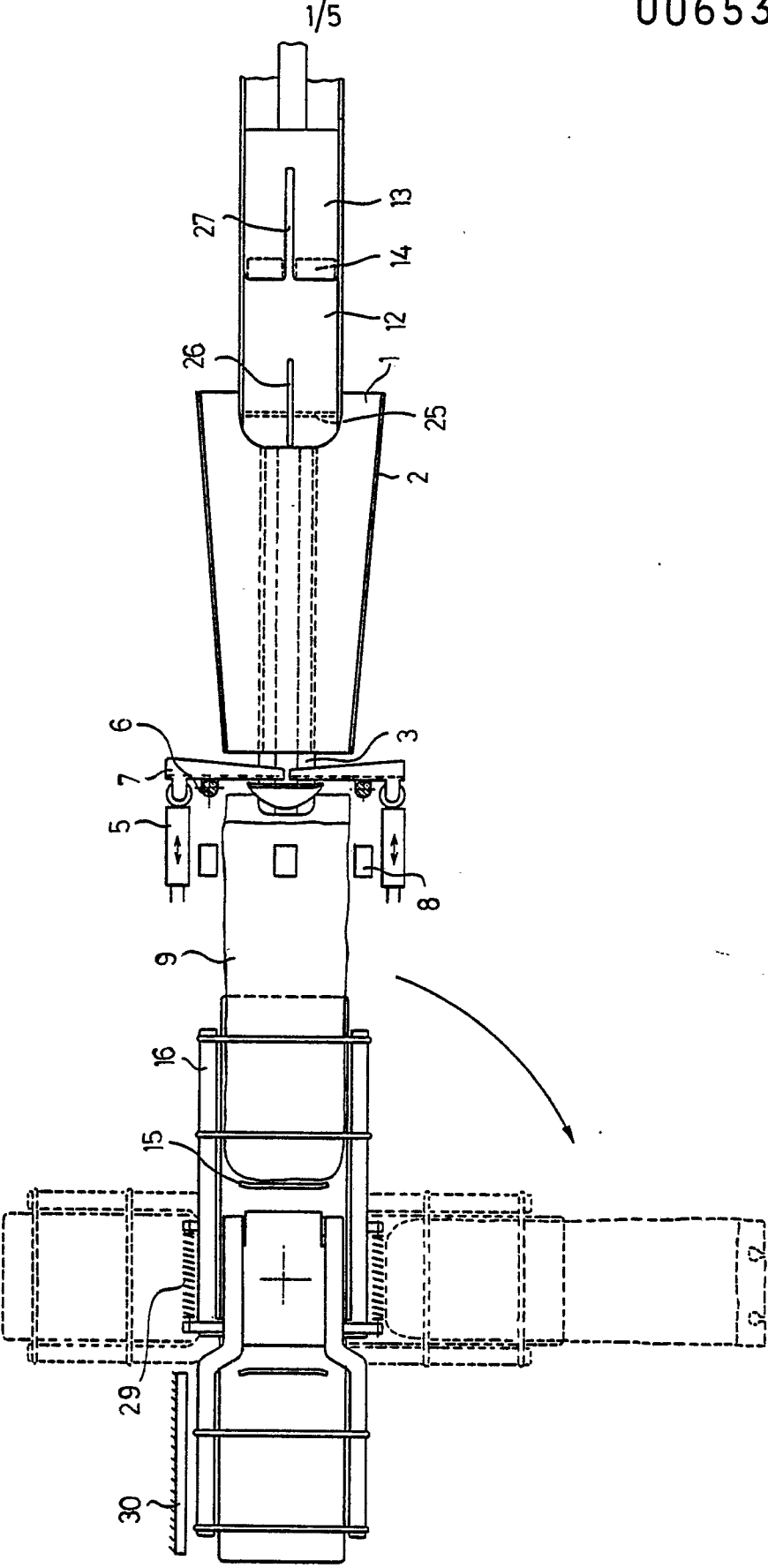
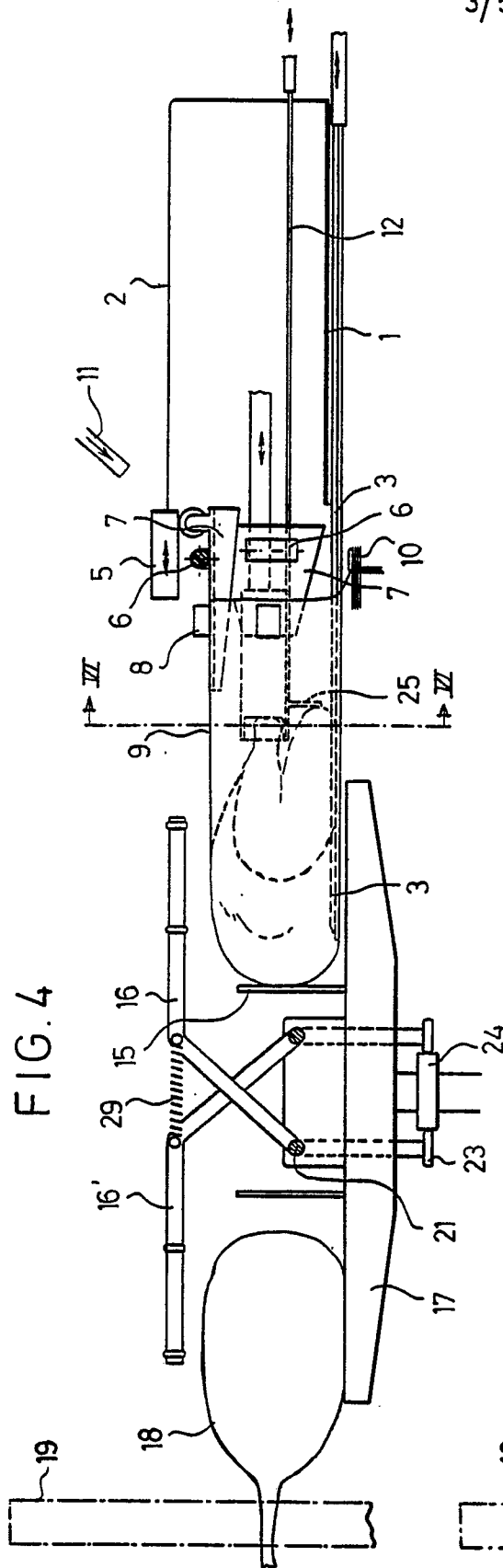


FIG. 4



516.5

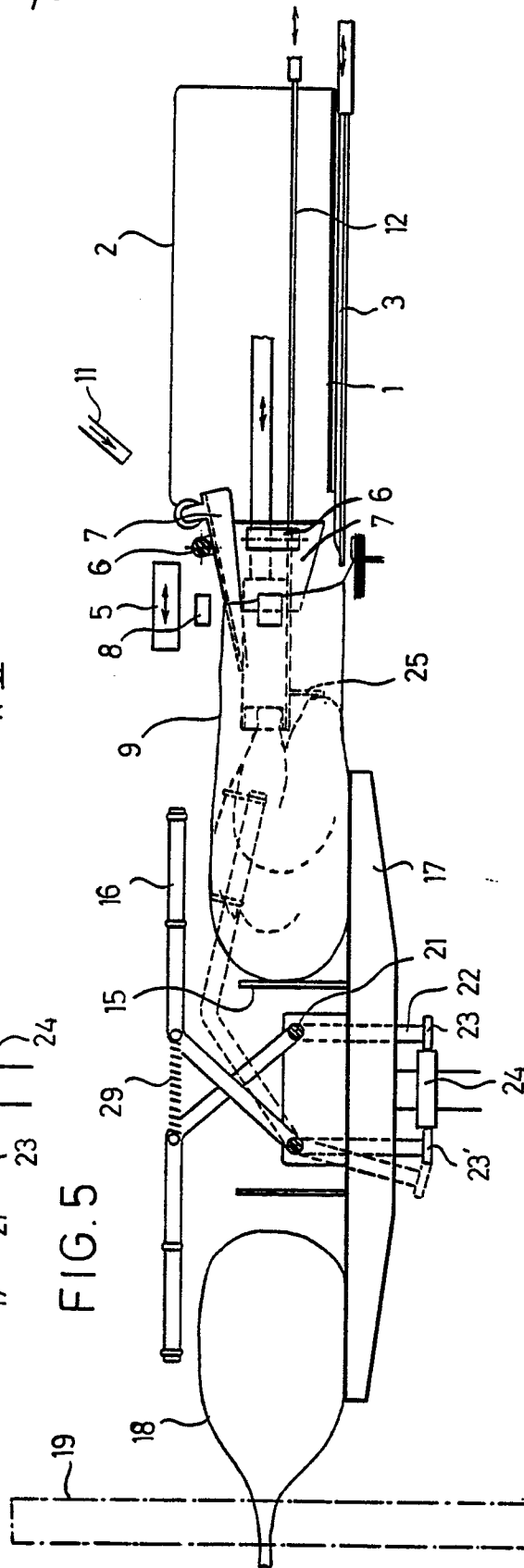


FIG. 6

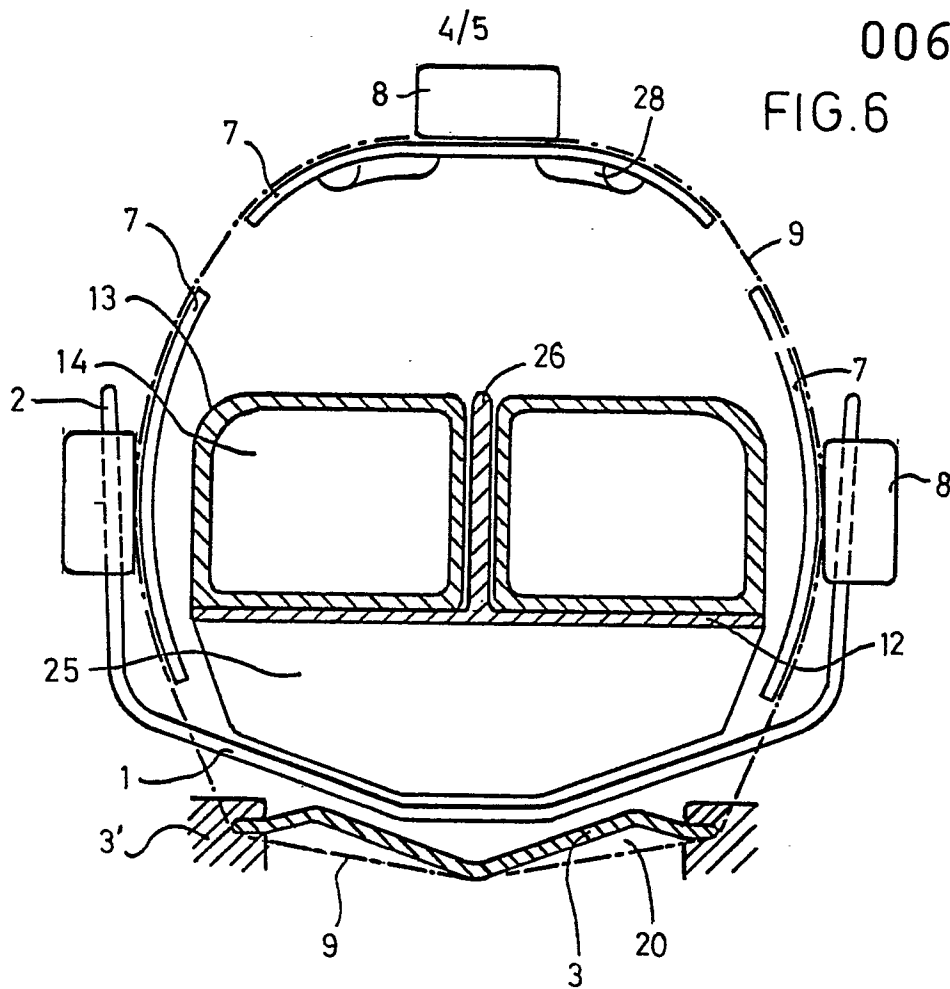


FIG. 7

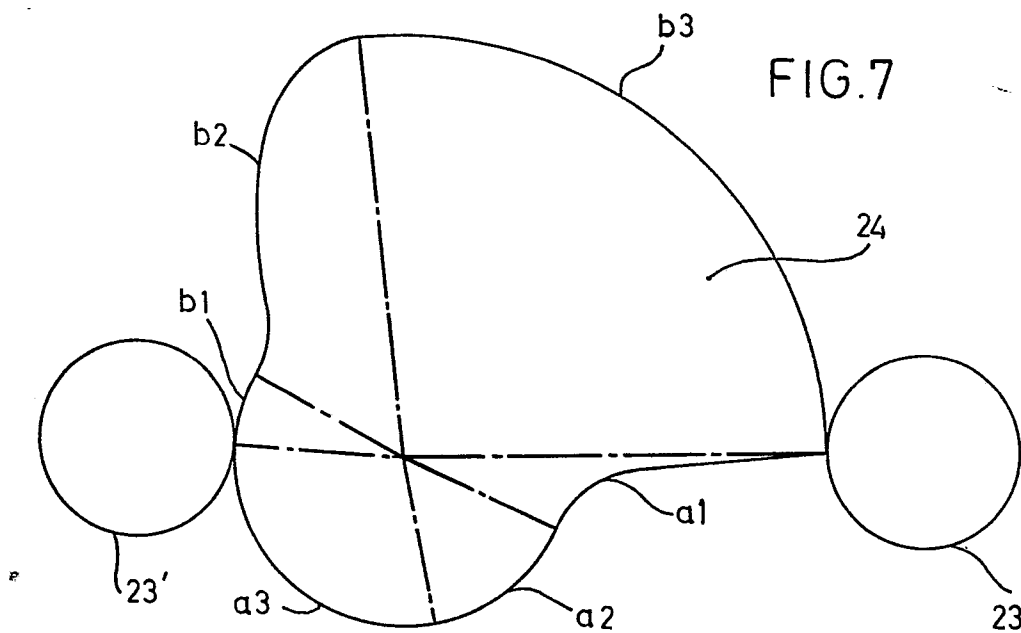
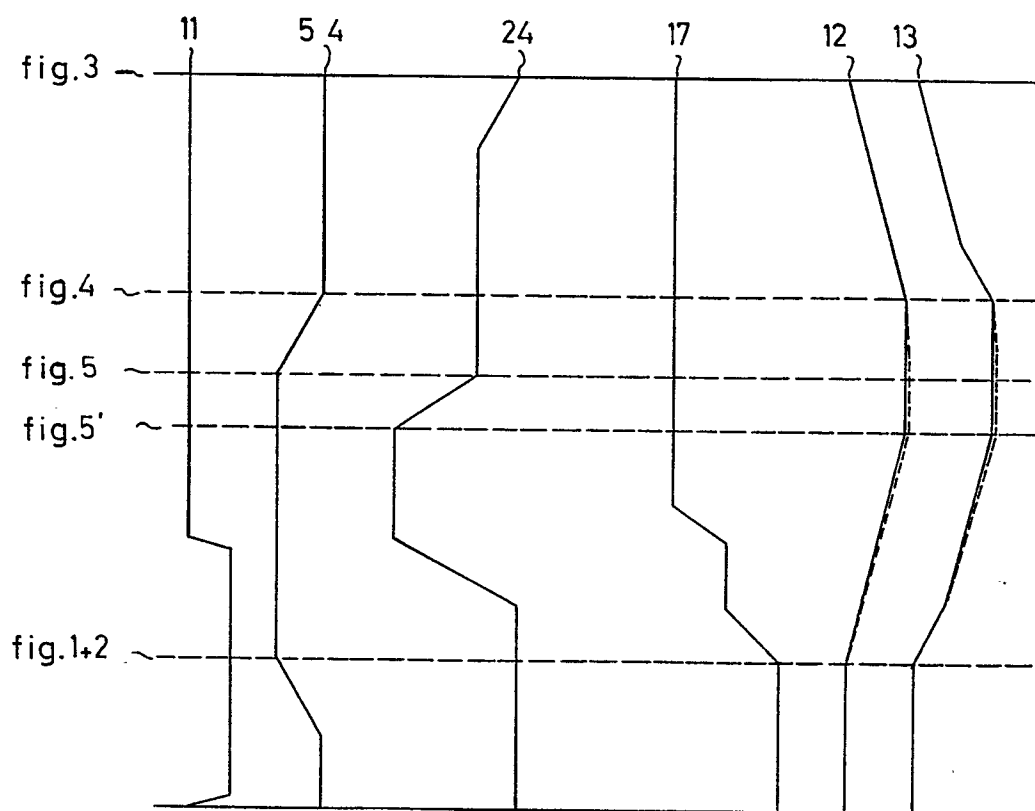


FIG.8



EUROPEAN SEARCH REPORT

EP 82 20 0583

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
A	GB-A-1 319 048 (STORK) *Page 3, line 53 - page 4, line 44; figures* -----	1, 4	B 65 B 25/06
			TECHNICAL FIELDS SEARCHED (Int. Cl. 3)
			B 65 B A 22 C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 02-08-1982	Examiner JAGUSIAK A.H.G.
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

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