

Internal distribution code:

- (A) [] Publication in OJ
(B) [] To Chairmen and Members
(C) [X] To Chairmen
(D) [] No distribution

**Datasheet for the decision
of 14 February 2011**

Case Number: T 0525/09 - 3.2.04

Application Number: 99906582.4

Publication Number: 1059853

IPC: A24C 5/35

Language of the proceedings: EN

Title of invention:

Variable-capacity buffer store for rod-shaped articles

Patentee:

International Tobacco Machinery Poland Sp. z.o.o.

Opponent:

Hauni Maschinenbau AG

Headword:

-

Relevant legal provisions:

-

Relevant legal provisions (EPC 1973):

EPC Art. 100(a)

Keyword:

"Main request - inventive step (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0525/09 - 3.2.04

D E C I S I O N
of the Technical Board of Appeal 3.2.04
of 14 February 2011

Appellant: Hauni Maschinenbau AG
(Opponent) Kurt-A.-Körper-Chaussee 8 - 32
D-21033 Hamburg (DE)

Representative: Wenzel & Kalkoff
Patentanwälte
Meiendorfer Strasse 89
D-22145 Hamburg (DE)

Respondent: International Tobacco Machinery Poland Sp. z.o.o.
(Patent Proprietor) ul. Warsztatowa 19A
PL-26 600 Radom (PL)

Representative: HOFFMANN EITLÉ
Patent- und Rechtsanwälte
Arabellastrasse 4
D-81925 München (DE)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 23 December 2008
rejecting the opposition filed against European
patent No. 1059853 pursuant to Article 101(2)
EPC.

Composition of the Board:

Chairman: M. Ceyte
Members: C. Scheibling
T. Bokor

Summary of Facts and Submissions

I. By its decision posted 23 December 2008 the Opposition Division rejected the opposition. On 18 February 2009 the Appellant (opponent) filed an appeal and paid the appeal fee simultaneously. The statement setting out the grounds of appeal was received on 23 April 2009.

II. The patent was opposed on the grounds based on Article 100(a) (lack of novelty and inventive step) and 100(b) EPC 1973. In a previous decision the Board of Appeal decided that the ground of opposition under Article 100(b) EPC did not prejudice the maintenance of the patent.

III. The following documents played a role in the present proceedings:

D1A: EP-A-0 444 782
D8: DE-B-1 292 069
D9: US-A-4 513 858
D12: WO-A-94/24026

IV. Oral proceedings took place on 14 February 2011 before the Board of Appeal.

Claim 1 of the main request (as granted) reads as follows:

"1. A variable-capacity buffer store for rod-shaped articles working in the system first in, first out, comprising the input station (16) connectable to a production machine and an output station (17) connectable to the receiving machine, and both the input

station (16) and an output station (17) co-operate with a continuous endless conveyor (8), carrying rod-shaped articles from the input station (16) to the output station (17), the first part of which is situated in a transport sector (11) and the second part of which is situated in a return sector (9), and length of the conveyor (8) in both of the sectors (9, 11) compensate each other characterised in that, at the inlet of the transport sector (11) is situated a first drive means (21) of the conveyor (8) which is controlled by and connected to a fullness sensor (22) assembled in the input station (16) via a control unit, and at the exit of the transport sector (11) is situated a second drive means (23) of the conveyor (8), which is controlled by and connected to a fullness sensor 24 assembled in the output station (17) via a control unit, and the transport sector (11) consists of the two, active and passive, identical support guide means (10,15), of the conveyor (8) that consist of independent disc modules (6) rotary assembled in the axes (5,14), the return sector (9) consists of the two, active and passive, identical support guide means (7,13) of the conveyor (8) that consist of independent disc modules (6) rotary assembled in the axes (4,12), the axis (5) of the active support guide means (10) in the transport sector (11) is fixed to the axis (4) of the active support guide means (7) in the return sector (9) by a carriage (3) moveable assembled on a horizontal guide bar (2) on a frame (1) of the store in the plane perpendicular to the axes (5,4)."

The Appellant requested that the decision under appeal be set aside and that the patent be revoked.

He mainly argued as follows:

D1A as well as D8 disclose variable-capacity buffer stores for rod-shaped articles working in the system first in, first out (the so-called FIFO type). The store as claimed differs from that of D1A or D8 in that the active support guide means are freely moveable along a guide bar. D8 teaches to use two drive motors each controlled by a single fullness sensor.

D12 shows a variable-capacity buffer store of the FIFO type in which the active support guide means are also freely moveable and which also reduces friction between the endless conveyor and the support guide means. A skilled person looking for improvements to the variable-capacity buffer store of D1A would apply the teachings of D12 and D8 and thus arrive at the claimed invention without inventive effort. Moreover, the store of claim 1 differs from that of D12 or D9 in that it further comprises fullness sensors for controlling each of the first and second drive means. However D8 teaches to use two drive motors each controlled by a fullness sensor. It would therefore have been obvious for a skilled person looking for improvements to the variable-capacity buffer store of D12 or D9 to provide the two drive motors with fullness sensors for controlling the linear speeds at the inlet and exit of the transport section in dependence on respectively the amount of articles supplied by the production machine and the amount of articles being received by the packaging machine.

The Respondent (patentee) contested the arguments of the Appellant. He mainly submitted that D1A as well as D12 teach to synchronise the speed of the conveyor at the inlet and outlet of the variable-capacity buffer store with that of the production and receiving machines.

There is no disclosure in either D1A or D12 that a buffer system can be implemented based on the action of two drive motors each controlled by a single fullness sensor.

There is no incentive for the skilled person to use fullness sensors as known from D8 in the variable-capacity buffer store of D12 which is not concerned with a multi-layered stream of rod-shaped articles. D8 is not a realistic starting point for the invention. A skilled person would not have tried to improve a variable-capacity buffer store which at the priority date was no longer adapted to handle the mass of rod-shaped articles supplied by an up-to-date production machine, when stores such as that described in D1A, which were able to cope with such a production, were on the market.

D9 describes another type of variable-capacity buffer store comprising a conveyor moving in a horizontal plane. This kind of store is not adapted for carrying small items and does not require any fullness sensors since the items disclosed therein are not able to form a multi-layered stream on the conveyor.

The Respondent requested that the appeal be dismissed (main request) or, in the alternative, that the decision under appeal be set aside and the patent be maintained in amended form on the basis of any of the auxiliary requests 1 to 5 filed by letter dated 13 January 2011.

Reasons for the Decision

1. The appeal is admissible.

2. *Main request - inventive step*

2.1 Starting from D1A as closest prior art.

2.1.1 It is undisputed that the subject-matter of claim 1 differs from that of D1A by the following features:

- at the inlet of the transport section there is provided the first drive means of the conveyor which is controlled by and connected to a fullness sensor assembled in the input station,
- the second drive means of the conveyor at the outlet of the transport section is controlled by and connected to a fullness sensor assembled in the output station,
- the support guide means of the conveyor consist of independent rotary disc modules,
- the axis of the active support guide means in the transport sector is fixed to the axis of the active support guide means in the return sector by a carriage moveable assembled on a horizontal guide bar on a frame of the store in a plane perpendicular to the axes.

2.1.2 According to the patent specification (column 2, lines 26 to 33), the problem to be solved by the invention is to provide a variable-capacity buffer store for rod-shaped articles working in the system first in, first out, comprising a continuous endless conveyor, which neither requires complicated regulation means for changing the length of the transport section and thus the buffer capacity, nor mechanical devices with significant friction.

2.1.3 The first in - first out buffer system of D1A has conveyor means divided in a transport section and a return section 10, the length of the transport section

and the buffer capacity being changed by moving drums 15 and 22 with respect to the passive drums 16 and 22. D1A teaches to use powered sprockets 40 and 42 that engage the respective tracks 39 and 41 to move said drums 15 and 22. This known buffer system neither discloses nor suggests the solution according to the invention in which the active support guide means are freely moveable along a guide bar and are not displaced by any drive means acting directly on them.

Moreover, the movement of the claimed support guide means 7 and 10 is the result of the difference in linear speed of the conveyor 8 effected by the first and second drive means at respectively the inlet and exit of the transport section. The linear speeds are controlled in dependence on the supply from the production machine and the demand from the packaging machine respectively, by means of fullness sensors connected to respectively the first and second drive means. Thus the difference between the linear speeds imposed on the conveyor by the first and second drive means determines the variation of the buffer capacity without that the active support guide means are moved by powered drives mechanically coupled to the support guide means. This solution is not suggested in D1A: This known buffer system is provided with only one drive means 17 at the exit of the transport section. At the inlet the pulley 28 of the production machine and the pulley 14 of the transport section are each associated with an encoder 14e, 29e for sensing the angular speed. The signals from the encoders are supplied to a comparator which provides the control unit 43 with an error signal proportional to the difference between the speeds of the pulleys 28 and 14 at the inlet transport section. Thus the speed of the

transport section and the speed of the production machine are kept the same. However there is no suggestion of controlling the linear speeds of the transport section at respectively the inlet and exit of the transport section in dependence on the amount of articles supplied by the production machine and the demand from the packaging machine. It is true that D1A suggests that the control function performed by the encoders 14e and 29e may be performed by any known type of control device for determining "for example the free surface of elements 2", but these sensors may be located "at any part of stores 1, 47 or the conveyors feeding elements 2 in and out stores 1, 47" (column 5, lines 44 to 47). There is however no disclosure or suggestion of providing a first and a second drive means at respectively the inlet and exit of the transport section and controlling their linear speed in dependence on the amount of articles supplied by the production machine and the amount of articles being received by the packaging machine respectively, by means of fullness sensors connected to respectively the first and second drive means.

2.1.4 The Appellant submitted, that in order to solve the above problem the skilled person would provide the first in-first out buffer system of D1A with the system proposed in D12 (Figures 1 to 5) in which in particular the active support guide means in the transport section and the active support means in the return section are mounted on a carriage moveable along a guide bar and are not driven by any drive means acting directly on them.

2.1.5 In D12 the movement of the carriage supporting the active support guide means in the transport section and

the active support guide means in the return section is the result from the differences in linear speed imposed on the conveyor by the first and second drive means at respectively the inlet and exit of the transport section.

However, in D12 the articles are conveyed in trays 4' (page 6, lines 8 to 12). Therefore, only a certain number of articles can be received in each tray and thus, they necessarily arrive sequentially or in bunch at the exit of the transport section and not in form of a multi-layered stream of articles. Furthermore, the articles to be stored according to the sole embodiment described in D12 are rod shaped ice-cream articles (page 5, lines 3 to 9). A fullness sensor is normally used for detecting the height of a multi-layered stream of articles. Accordingly, these sensors are not suitable for use in variable capacity buffer stores where the articles can only be delivered sequentially or in bunch. Thus although D12 teaches a variable-capacity buffer store for rod-shaped articles, in which the inlet of the transport section co-operates with the production machine and the exit of the transport section co-operates with the receiving machine, there is no reason for the skilled person confronted with the above technical problem to provide each of the first and second drive means with a fullness sensor for controlling their speed in dependence on the amount of articles supplied by the production machine and the amount of articles received by the packaging machine, as D12 is concerned with tray-borne articles, not with a multi-layered stream of articles on a continuous endless conveyor.

Therefore, a skilled person would not have contemplated equipping the variable capacity buffer store of D12 with fullness sensors.

2.1.6 The Appellant contended that the objective problem to be solved by the invention is to be regarded as an aggregation of two partial problems, namely a first one, which in essence is to simplify the capacity adjusting mechanism and a second one, which is to improve the control of the drive means and which is solved by the use of fullness sensors. Therefore, the skilled person would in addition to D1A and D12 also combine D8 which teaches to use fullness sensors for controlling the first and second drive means.

However, the claimed invention is based on the idea of implementing a buffer system based on the action of only two drive means at respectively the inlet and exit of the transport section, each drive means being controlled by a single fullness sensor. This requires that the active support means are freely moveable along a guide bar and are thus not driven by further drive means acting directly on them.

Accordingly, the features of claim 1 are functionally interdependent and therefore the combination of D1A with D12 and D8 can only be based on hindsight.

2.2 Starting from D8

2.2.1 D8 (Figure 4) discloses a variable-capacity buffer store for rod-shaped articles working in the system first in, first out, comprising the input station (12) connectable to a production machine and an output station (7) connectable to the receiving machine, and between the input station (12) and the output station (7) are

provided two continuous endless conveyors (71, 6), carrying rod-shaped articles from the input station (12) to the output station (7), the first endless conveyor (71) comprises a transport section and a return section, and length of the conveyor (71) in both of the sections compensate each other, the endless conveyor (71) is provided with a first drive means (52) which is controlled by a fullness sensor (85) assembled in the input station (12) via a control unit, and a second drive means (53) which is controlled by a fullness sensor (61) assembled in the output station (7) via a control unit.

2.2.2 The variable-capacity buffer store of claim 1 mainly differs from that of D8 in that both the input station and the output station co-operate with the same continuous endless conveyor, the transport section consists of the two, active and passive, identical support guide means that consist of independent disc modules rotary assembled in the axes, the return section consists of the two, active and passive, identical support guide means that consist of independent disc modules rotary assembled in the axes, the axis of the active support guide means in the transport sector is fixed to the axis of the active support guide means in the return section by a carriage moveable assembled on a horizontal guide bar on a frame of the store in the plane perpendicular to the axes, a first drive means of the conveyor is situated at the inlet of the transport section and a second drive means is situated at the exit of the transport sector of the conveyor.

2.2.3 The Appellant argued that the objective technical problem to be solved by the invention with respect to D8 was to increase the storage capacity and to provide a more careful handling of the articles.

2.2.4 The Appellant further submitted that, in order to solve the above problem, the skilled person would consider D12, because one object of this citation is to offer more storage time by increasing the storage capacity.

2.2.5 However, when starting from the variable-capacity buffer store of D8 and in order to modify it in accordance with the teaching of D12 as proposed by the Appellant, the skilled person would have to replace any part of the variable capacity store of D8 except the fullness sensors. This means that all components of the transport and return sections of D8, by means of which the device described in this citation is effectively a variable-capacity buffer store for rod-shaped articles, would have to be removed. Consequently, D8 cannot be regarded as closest prior art for the assessment of inventive step, because a closest prior art requires in principle the minimum of structural and functional modifications to arrive at the claimed invention and this is here not the case. Therefore any attempt to start from D8 as closest prior art and combine it with D12 can only be based on hindsight.

2.3 Starting from D12

2.3.1 D12 does not appear to be a realistic starting point for the claimed invention since its purpose is the handling of frozen products such as ice cream.

The variable-capacity buffer store of claim 1 mainly differs from that of D12 in that first and the second conveyor drive means are controlled by fullness sensors assembled in the input and output stations.

2.3.2 The Appellant submitted that it would have been obvious for the skilled person to control each of the first and second drive means of D12 by means of a single fullness sensor as taught by D8.

However as has been explained, D12 is concerned with tray-borne articles, not with a multi-layered stream of rod-shaped articles. The tray conveyor disclosed therein does not require fullness sensors. There is thus no incentive for the skilled person, when looking for improvements to the variable-capacity buffer store of D12, to control each of the two drive motors by a single fullness sensor. The point is namely not whether the skilled person could have arrived at the invention by combining D12 and D8, but whether he would have done so because D8 incited him to do so in the hope of solving the objective technical problem or in expectation of some improvement or advantage. This is here not the case, in particular because D8, a thirty years old prior art citation, is concerned with a buffer system of very limited storage capacity having the drawback of using a deflecting device which can damage the cigarettes.

2.3.3 Therefore, a skilled person would not have contemplated equipping the variable capacity store of D12 with fullness sensors as taught by D8.

2.4 Starting from D9

2.4.1 Neither the decision under appeal nor the grounds of appeal mention D9.

Apart from the admissibility problem of this line of attack which was presented for the first time during the oral proceedings before the Board, it is noted that the variable-capacity buffer store of D9 does not comprise first and second conveyor drive means controlled by and connected to fullness sensors assembled in the input and output stations. Moreover the drive means (61A, 62A) of the conveyor are not located at the inlet and exit of the transport section (Figures 1, 3, 4, 5, and 6).

The Appellant considered that the objective technical problem to be solved with respect to this prior art may be seen in optimising the variable-capacity store buffer of D9 and submitted that the skilled person would solve this problem by controlling the drive means with fullness sensors as disclosed in D8.

2.4.2 As stated in column 2, lines 37 to 48, the variable-capacity buffer store of D9 is adapted for storing items such as fresh food, e.g. meat, cheese, poultry and candy or items of the canning, frozen food, health care industries as well as items of the paper, toiletry, automotive and electronic industries. Furthermore, the variable capacity buffer store is adapted for receiving items of irregular shape and size (column 2, lines 64 to 66).

It is thus questionable whether this buffer system is suitable for storing rod-shaped articles at all. Moreover, most if not all of the items cited in D9 are

not able to form a multi-layered stream of rod-shaped articles on the conveyor as is the case in D1A or D8.

Thus for the same reasons as indicated with respect to D12, a skilled person would have not contemplated equipping a variable capacity buffer store as disclosed in D9 with fullness sensors for controlling the first and second drive means of the continuous endless conveyor.

Moreover, there is no hint in D8 to locate the two drive means of the conveyor at respectively the inlet and exit of the transport section. Therefore any hypothetical combination of D9 and D8 would still lack these features.

- 2.5 Consequently, none of D1A, D8, D9 or D12 taken individually or in combination would have led the skilled person in an obvious manner to the subject-matter of claim 1 as granted.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

G. Magouliotis

M. Ceyte