Internal distribution code:

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

Datasheet for the decision of 13 February 2025

Case Number: T 1931/22 - 3.2.08

Application Number: 16710360.5

Publication Number: 3262320

IPC: F16H25/20, F16H57/01, F16H19/06

Language of the proceedings: EN

Title of invention:
HIGH SPEED ROD-STYLE LINEAR ACTUATOR

Patent Proprietor:
Tolomatic, Inc.

Opponent:
Festo SE & Co. KG

Relevant legal provisions:
EPC Art. 83, 84, 54, 56

Keyword:
Sufficiency of disclosure - (yes)
Claims - clarity (yes)
Novelty - (yes)
Inventive step - (yes)

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0

Case Number: T 1931/22 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 13 February 2025

Appellant: (Opponent)	Festo SE & Co. KG Ruiter Straße 82 73734 Esslingen (DE)
Representative:	Patentanwälte Magenbauer & Kollegen Partnerschaft mbB Plochinger Straße 109 73730 Esslingen (DE)
Respondent: (Patent Proprietor)	Tolomatic, Inc. 3800 County Road 116 Hamel, Minnesota 55340 (US)
Representative:	Meissner Bolte Partnerschaft mbB Patentanwälte Rechtsanwälte Postfach 86 06 24 81633 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 21 June 2022 concerning maintenance of the European Patent No. 3262320 in amended form.**

Composition of the Board:

Chairwoman	P. Acton
Members:	A. Björklund
	C. Schmidt

Summary of Facts and Submissions

I. The appeal was filed by the opponent (appellant) against the interlocutory decision of the opposition division finding that, on the basis of the "New 2nd auxiliary request claims", the patent in suit met the requirements of the EPC.

II. The opposition division decided that the subject-matter of claim 1 of this request was new and that the subject-matter of claims 1 and 9 thereof involved an inventive step.

III. Oral proceedings were held before the Board on 13 February 2025.

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

V. The respondent requested that the appeal be rejected as inadmissible or, alternatively, that it be dismissed and that the patent be maintained as held allowable by the opposition division, i.e. on the basis of the "New 2nd auxiliary request claims" as filed on 10 March 2022 (main request), or that it be maintained on the basis of any of the 3rd to 7th auxiliary requests dated 24 March 2023, or that it be maintained on the basis of the 8th auxiliary request dated 10 January 2025.

VI. Independent claim 1 of what is now the main request (previously designated "New 2nd auxiliary request claims") reads as follows (with feature designations added by the board):

1.1 "An actuator system (10) comprising:

1.2 an actuator housing (14) having a longitudinal axis;

1.3 a piston member (30) disposed within the actuator housing (14) along the longitudinal axis;

1.4 a drive belt (24) coupled to the piston member (30),

1.5 the drive belt (24) configured to drive the piston member (30) in reciprocal motion along the longitudinal axis;

A wherein the piston member (30) is attached to the drive belt (24) via a belt clamp (34) or other mechanical attachment and

1.6 an output rod (20) having a first end coupled to the piston member (30) and

1.7 second end [sic] opposite the first end;

1.8 one or more wear members (36) or rings disposed in sliding engagement between the piston member (30) and an inner surface of the actuator housing (14); and

1.9 a bushing (40) disposed in sliding engagement about the distal end of the output rod (20) in the front end of the actuator housing (14);

1.10 wherein the second end of the output rod (20) is selectively positionable outside the actuator housing (14) in response to the reciprocal motion of the piston member (30) within the actuator housing (14)."

Claim 9 of the main request reads as follows:

9.1 "A method comprising: supporting an output rod (20) in sliding engagement within an actuator housing (14),

9.2 wherein the output rod (20) comprises a first end attached to a drive member (30) and

9.3 a second end selectively positionable exterior to the actuator housing (14), opposite the first end;

9.4 positioning the drive member (30) in reciprocal motion within the actuator housing (14), along a longitudinal axis thereof; and

9.5 selectively controlling the reciprocal motion of the drive member (30) with a belt drive system (24) comprising

9.6 a timing belt (24) disposed between a drive pulley (26) and an idler (28) along the longitudinal axis within the housing (14);

9.7 wherein the drive member (30) is coupled to the timing belt (24) between the drive pulley (26) and the idler (28),

9.8 such that the second end of the output rod (20) is selectively positioned based on a rotational position of the drive pulley (26),

9.9 wherein the drive member (30) comprises a piston (30) disposed about the timing belt (24) and

9.10 coupled to an upper or lower portion thereof, and

9.11 further comprising positioning the piston (30) in reciprocal sliding engagement with an inner surface of the actuator housing (14),

9.12 further comprising one or more wear rings (36) or other sliding engagement members (36)

9.13 provided between an outer surface of the piston (30) and an inner surface of the actuator housing (14); and

9.14 further comprising supporting the output rod (20) in sliding engagement proximate the second end, parallel to and offset from the longitudinal axis of the actuator housing (14)."

VII. The following documents are relevant to the decision:

D1: FR 2 746 884 A1
D2: EP 0 162 343 A1
D6: DE 10 2009 016 928 A1
D8: DE 34 06 644 A1

VIII. The appellant's arguments, where relevant for the present decision, can be summarised as follows:

Feature A - clarity and sufficiency of disclosure

The meaning of the term "mechanical attachment" in Feature A was not clear, and the person skilled in the art could not carry out the invention over the full scope of the claim.

Claim 1 - Novelty

The subject-matter of claim 1 lacked novelty over the actuator system in Figures 1 to 3 of D6. The piston member 48 was attached to the drive belt 112 via an "other mechanical attachment".

The subject-matter of claim 1 also lacked novelty over the actuator system in D1. Part 13 could be regarded as a piston member within the meaning of Feature 1.3, and therefore part 12 was a wear member within the meaning of Feature 1.8.

Claims 1 and 9 - Inventive step

Assuming that "pièce" 12 was a piston member within the meaning of Feature 1.3, it was obvious to the person skilled in the art to provide wear members or rings between the "piston member" 12 and the actuator housing 1 according to Feature 1.8 in order to increase the lifespan of the actuator. Such wear members and rings were known to the person skilled in the art from their common general knowledge or from D2, D6 or D8.

IX. The respondent's arguments, where relevant for the present decision, can be summarised as follows:

Feature A - clarity and sufficiency of disclosure

The term "mechanical attachment" was clear to the person skilled in the art and they would have no problem in putting the invention into practice.

Claim 1 - Novelty

The subject-matter of claim 1 was new over both D6 and D1.

The piston member 48 and the drive belt 112 of the actuator system in D6 did not move as a unit as required by the term "mechanical attachment" of Feature A.

The person skilled in the art would consider part 12, and not part 13, of the actuator system in D1 to be a piston member within the meaning of Feature 1.3. The system therefore had no wear member(s) or ring(s) according to Feature 1.8.

Claims 1 and 9 - Inventive step

The piston member 12 and the actuator housing 1 in the actuator system of D1 did not come into contact under the intended operating conditions. The person skilled in the art therefore had no incentive to provide this system with wear members or rings according to Feature 1.8. Should an overload cause the piston member 12 to contact the actuator housing 1, the person skilled in the art would select an actuator system suitable for these loads instead of providing wear members or rings according to Feature 1.8.

Reasons for the Decision

1. Feature A - clarity and sufficiency of disclosure

The appellant argued that Feature A, which was added to claim 1 of the main request ("New 2nd auxiliary request claims") during the opposition proceedings, did not meet the requirements of Article 83 or 84 EPC.

It argued that the term "mechanical attachment" was not clear to the person skilled in the art, and they could not carry out the invention over the whole scope of the claim, either.

1.1 However, "mechanical attachments" within the meaning of Feature A are any mechanical parts capable of

connecting the piston member to the drive belt. The feature as such is broad, but that does not render it unclear.

The person skilled in the art is familiar with clamps and with alternative "mechanical attachments". They would therefore have no problem in implementing a mechanical attachment connecting the piston member to the drive belt.

The objections under Articles 83 and 84 EPC therefore do not prejudice the maintenance of the patent on the basis of the main request.

2. Claim 1 - Novelty over D6

Figures 1 to 3 of D6 disclose an actuator system having a piston 48 with a threaded nut 18. The nut 18 is in threaded engagement with the lead screw 58, and the piston 48 and nut 18 are rotationally locked with respect to the housing 12 such that a rotation of the lead screw results in an axial translation of the nut 18, piston 48 and output rod 62. The lead screw is driven by a drive belt 112.

2.1 The appellant argued that the term "mechanical attachment" in Feature A should be interpreted broadly and did not require a direct attachment of the piston to the drive belt. Thus, the lead screw 58 and other intermediate parts mechanically linking the piston 48 to the drive belt 112 represented a "mechanical attachment" within the meaning of Feature A.

2.2 Although the wording of Feature A does not exclude the possibility of intermediate parts between the drive belt and the piston, the Board agrees with the

respondent that the "mechanical attachment" of this feature requires a physical connection such that the piston member and the drive belt move together.

The person skilled in the art would not understand the piston member 48 as being attached to the drive belt 112 - which rotates the lead screw 58 and thereby causes the nut 18 and piston member 48 to move in translation - because the piston member and the belt do not move together. Thus, D6 does not disclose Feature A.

The subject-matter of claim 1 is therefore new over D6.

3. Claim 1 - Novelty over D1

Figures 1 to 7 of D1 show an actuator system comprising output rods 2, 2'. The rods are connected by parts 12 and 13 to a drive chain 4 which, in an alternative embodiment, can be replaced by a toothed belt (see page 4, lines 15 to 21, of D1).

3.1 The appellant argued that "pièce" 13, which is connected to the chain (or belt), could be considered to be a piston member according to Feature 1.3 and "pièce" 12 could be considered to be a wear member according to Feature 1.8.

3.2 However, the person skilled in the art would consider a piston member to be something that at least approximately follows the inner contour of the housing. They would therefore consider "pièce" 12, which follows the inner contours of the actuator housing 1, to be a piston member within the meaning of Feature 1.3.

Contrary to the appellant's submissions, however, the

skilled person would not consider "pièce" 13, which is a small part connecting "pièce" 12 to the chain (or belt) 4, to be a piston member within the meaning of Feature 1.3 (see in particular Figures 5 and 6). "Pièce" 13 instead constitutes a mechanical attachment means according to Feature A. The appellant has not argued that "pièce" 13 could be considered to be a wear member within the meaning of Feature 1.8.

Consequently, D1 at least does not disclose a wear member between the piston member and an inner surface of the actuator housing, as required by Feature 1.8.

The subject-matter of claim 1 is therefore new over D1.

4. Claim 1 - Inventive step starting from D1

As set out above, the subject-matter of claim 1 differs from the actuator system in D1 at least by Feature 1.8.

4.1 The appellant argued that Figure 5 showed that there was a gap between the output rods 2, 2' and the actuator housing 1, but that the piston member 12 was in contact with the actuator housing 1. If there was a gap between the piston member 12 and the actuator housing 1, it was very small.

Thus, in use, loads on the output rods 2, 2' would inevitably result in contact between the piston member 12 and the actuator housing 1; at least during rapid acceleration of large masses.

The presence of one or more wear members or rings in sliding engagement between the piston member and an inner surface of the actuator housing solved the

technical problem of increasing the lifespan of the actuator.

It was obvious to the person skilled in the art to provide the actuator system of D1 with such wear members or rings in order to solve the technical problem posed in the light of their common general knowledge, or D2, D6 or D8.

4.2 However, the drawings of D1 are schematic and not detailed or precise enough to infer whether the piston member 12 is in contact with the actuator housing 1. Furthermore, there is no mention of such contact in the written disclosure of D1.

Instead, D1 describes how the use of two output rods at the corners of the housing provides good balance and excellent (mechanical) guidance (see page 3, line 31, to page 4, line 3, of D1).

Hence, the information provided in D1 in this respect does not lead the person skilled in the art to conclude that the piston member 12 makes contact with the actuator housing 1 during operation within the intended operating conditions. They would therefore have no reason to seek a solution to a technical problem arising from (a non-existent) contact between the piston member and the actuator housing. If contact were to occur as a result of operation outside of the intended operating conditions, the obvious solution would be to select an actuator which is suitable for that use, instead of providing wear members or rings according to feature 1.8.

Therefore, the objection under Article 56 EPC starting from D1 does not prejudice the maintenance of claim 1 of the main request.

5. Claim 9 - Inventive step starting from D1

Features 9.12 and 9.13 correspond to Feature 1.8.

Therefore, for the reasons set out above, the objection under Article 56 EPC starting from D1 does not prejudice the maintenance of claim 9 of the main request.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairwoman:

C. Moser P. Acton

Decision electronically authenticated