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# Datasheet for the decision of 11 May 2021

**Case Number:** T 0945/17 - 3.2.06

**Application Number:** 12192463.3

**Publication Number:** 2599904

**IPC:** D01H1/22

**Language of the proceedings:** EN

**Title of invention:**
Movement apparatus for the drafting cylinders of a spinning machine

**Patent Proprietor:**
MARZOLI MACHINES TEXTILE S.r.l.

**Opponent:**
Saurer Spinning Solutions GmbH & Co. KG

**Headword:**

**Relevant legal provisions:**
EPC Art. 54, 56, 100(a)

**Keyword:**
Novelty - (yes)
Inventive step - (yes)

**Decisions cited:**

**Catchword:**

Europäisches Patentamt
European Patent Office
Office européen des brevets

**Beschwerdekammern**

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**Case Number: T 0945/17 - 3.2.06**

# D E C I S I O N
# of Technical Board of Appeal 3.2.06
# of 11 May 2021

| | |
|---|---|
| **Appellant:** (Opponent) | Saurer Spinning Solutions GmbH & Co. KG<br>Carlstr. 60<br>52531 Übach-Palenberg (DE) |
| **Representative:** | Saurer Spinning Solutions GmbH & Co. KG<br>Patentabteilung<br>Carlstr. 60<br>52531 Übach-Palenberg (DE) |
| **Respondent:** (Patent Proprietor) | MARZOLI MACHINES TEXTILE S.r.l.<br>Via S. Alberto, 10<br>25036 Palazzolo sull'Oglio (BS) (IT) |
| **Representative:** | Pulieri, Gianluca Antonio<br>Jacobacci & Partners S.p.A.<br>Piazza della Vittoria, 11<br>25122 Brescia (IT) |
| **Decision under appeal:** | **Decision of the Opposition Division of the European Patent Office posted on 16 February 2017 rejecting the opposition filed against European patent No. 2599904 pursuant to Article 101(2) EPC.** |

**Composition of the Board:**

| | |
|---|---|
| **Chairman** | M. Harrison |
| **Members:** | M. Hannam |
| | W. Ungler |

## Summary of Facts and Submissions

I. An appeal was filed by the appellant (opponent) against the decision of the opposition division rejecting the opposition to European patent No. 2 599 904. It requested that the decision under appeal be set aside and the patent be revoked.

II. In its letter of response, the respondent (patent proprietor) requested that the appeal be dismissed or, in the alternative, that the patent be maintained according to one of auxiliary requests 1 to 4.

III. The following documents are relevant to the present decision:

E1 WO-A-03/014442
E3 WO-A-2008/000102

IV. The Board issued a summons to oral proceedings and a communication dated 13 November 2020 containing its provisional opinion, in which it indicated *inter alia* that the novelty of the subject-matter of claim 1 appeared to be prejudiced by E1. It further indicated that the novelty objection based on E3 was not persuasive.

V. Oral proceedings were held before the Board on 11 May 2021. During oral proceedings the respondent filed (labelled E4 by the Board):

E4 a two page explanation regarding E1

At the close of the proceedings, the parties' requests were as follows:

The appellant requested that the decision under appeal be set aside and the European patent No. 2 599 904 be revoked.

The respondent requested that the appeal be dismissed.

VI. Claim 1 of the main request reads as follows:

"Spinning machine of a spinning line comprising on each side:
- a first drafting cylinder (1) rotating on command around a respective first rotation axis (Z1);
- a second drafting cylinder (2) rotating on command around a respective second rotation axis (Z2);
- a third drafting cylinder (3) rotating on command around a respective third rotation axis (Z3);
characterised by
- a first motor of the first cylinders (10) kinematically connected to the first cylinders (1) to move them;
- a motor of the second and third cylinders (20,30) kinematically connected to the second drafting cylinders (2) and to the third drafting cylinders (3) to move these by means of a transmission device (20);
wherein the transmission device comprises at least one reducer (50a, 50b) connected to the motor of the second and third cylinders (20,30) and the transmission of the movement between the shafts (70,84,94) downstream of the reducer (50a, 50b) is performed by means of belts."

VII. The appellant's arguments may be summarised as follows:

The subject-matter of claim 1 of the main request lacked novelty over E1.

As regards the feature of claim 1 that 'the transmission of the movement between the shafts downstream of the reducer is performed by means of belts', the shafts in question were those of the entrance cylinders 3, 3' and those of the middle cylinders 4, 4' in E1. The belts 9', 9' transmitted movement from the entrance cylinders 3, 3' to the middle cylinders 4, 4' and these entrance and middle cylinders were all downstream of the respective reducers 9, 9 as was evident from Fig. 1 when read in combination with page 4, lines 19 to 20.
Regarding the feature 'a motor of the second and third cylinders kinematically connected to the second drafting cylinders and to the third drafting cylinders to move these by means of a transmission device', this was known by way of the kinematic connection realised by the drive from the master motor 10' via the reducer 9 and the belt 9' on the master motor side of the machine, via the gearbox 11 to the belt 9' and reducer 9 on the opposite side of the machine. This mechanically linked the two machine sides. Page 3, lines 5 to 10 of E1 disclosed how the slave motor solely provided torque to its cylinders, the synchronisation and motor speed being governed by the master motor. As a consequence, whenever the slave motor 10 diverged from its set-point (i.e. rotated too quickly or too slowly) the master motor would correct this via the kinematic connection. The master and slave motors, whilst desirably running identically, would necessarily not constantly do so.

The subject-matter of claim 1 of the main request also lacked novelty over E3. With reference to Figs. 1 to 6 and page 10, line 4 to page 13, line 19, E3 implicitly disclosed a two sided spinning machine and thus all

features of the preamble of claim 1. E3 also implicitly disclosed a reducer through a combination of the sprockets 25 and the chain 24, the cylinders 5 and 12 being downstream of the reducer and movement between them being transmitted by a belt (see page 10, lines 13 to 15).

The subject-matter of claim 1 did not involve an inventive step. Starting from E1, since this disclosed all features of claim 1, its subject-matter could not involve an inventive step. Starting from E3, should this be regarded as not disclosing transmitting the movement between the shafts downstream of the reducer using belts, for the skilled person this would be an obvious alternative to the disclosed sprocket and chain embodiment as indicated on page 10, lines 13 to 15 of E3. Alternatively, E1 provided the hint both to a two-sided machine (see page 1, line 15) and to driving the cylinders by electric motors via a reducer (see page 4, lines 11 to 13).

VIII. The respondent's arguments may be summarised as follows:

E1 was not prejudicial to the novelty of the subject-matter of claim 1 of the main request.
As regards the feature that 'the transmission of the movement between the shafts downstream of the reducer is performed by means of belts', the term 'downstream' was to be understood in the context of the function of the reducer, not its location, as was clear from paragraphs [0010], [0011], [0062] and [0063] of the patent i.e. downstream was to be understood as the low speed side of the reducer. Page 4, lines 19 to 20 of E1 simply indicated that the belt 9' was connected to the reducer 9 and failed to disclose the belt being

connected to the low speed side of the reducer i.e. 'downstream'. Even if the circumferential speed of cylinders 3, 3' was necessarily slower than that of the cylinders 4, 4' in order to achieve drafting of the yarn being processed, this did not necessarily imply that the speed of rotation of the cylinders 3, 3' was slower since e.g. the diameter of the cylinders would also affect circumferential speed. E1 also disclosed just one single belt in the kinematic chain of the drafting cylinders, i.e. belt 9' and this was not associated with the middle cylinder 4.

Regarding the feature 'a motor of the second and third cylinders kinematically connected to the second drafting cylinders and to the third drafting cylinders to move these by means of a transmission device', E1 failed to unambiguously disclose that the master motor 10' drives the second and third drafting cylinders on both sides of the spinning machine. In fact the opposite was true with the slave motor 10 being primarily responsible for the movement of the second and third cylinders on its side of the machine (see e.g. page 3, lines 18 to 21). The master motor was responsible for ensuring that the cylinder speed and its synchronous running on each side of the machine was maintained but, absent a disclosure of the slave motor 10 being switched-off, the master motor would not be responsible for the movement of the cylinders on the slave side of the machine. Further, it was only possible for one of the two motors (10, 10') to be driving any particular component in the kinematic chain at any one time, a 'neutral driving point' existing (see E4). With both the master and the slave motors 10', 10 being driven with the same signals (see Fig. 1; page 5, lines 12 to 16), the neutral driving point of the kinematic chain would not be so skewed to the slave

motor side of the machine that the master motor 10' would drive the cylinders 3' and 4'. Page 3, lines 16 to 21 confirmed this interpretation of E1 whereby the slave motor would be driven to maintain the required speed and torque rather than the master motor 10' maintaining these.

The subject-matter of claim 1 was also novel over E3. E3 failed to disclose both sides of the spinning machine and consequently disclosed only a single first, second and third drafting cylinder. There was also no unambiguous disclosure of a reducer, nor of belts transmitting movement between the drafting cylinders downstream of the reducer.

The subject-matter of claim 1 involved an inventive step. Starting from E1, the appellant had given no further explanation going beyond its novelty objection, so no substantiated objection existed. When starting from E3, the opposition division's reasoning had not been questioned by the appellant.

## Reasons for the Decision

*Main request*

1. *Novelty with respect to E1 and E3*

The ground for opposition under Article 100(a) EPC in combination with Article 54 EPC does not prejudice maintenance of the patent as granted.

1.1 E1 discloses the following features of claim 1 (the reference signs in parentheses referring to E1):

Spinning machine of a spinning line (see page 1, line 15) comprising on each side:
- a first drafting cylinder (5, 5'; see page 3, lines 31 to 32; Fig. 1) rotating on command around a respective first rotation axis;
- a second drafting cylinder (4, 4'; see page 3, lines 31 to 32; Fig. 1) rotating on command around a respective second rotation axis;
- a third drafting cylinder (3, 3'; see page 3, lines 31 to 32; Fig. 1) rotating on command around a respective third rotation axis;
- a first motor (7) of the first cylinders (5, 5') kinematically connected to the first cylinders to move them (see Fig. 1; page 4, lines 1 to 3);
- a motor of the second and third cylinders (10, 10') kinematically connected to the second drafting cylinders (4, 4') and to the third drafting cylinders (3, 3');
wherein the transmission device comprises at least one reducer (9) connected to the motor of the second and third cylinders (10, 10') and
the transmission of the movement between the shafts (those of cylinders 3 and 4; 3' and 4') downstream of the reducer (9, 9) is performed by means of belts (9', 9').

1.2 The respondent's argument that the cylinders 3, 3' and 4, 4' were not unambiguously downstream of the reducer 9 is not accepted. Certainly the shafts 4, 4' can only be logically interpreted as being downstream of the respective reducer 9, not least since these are named 'Untersetzungsgetriebe 9' (English: reduction gear unit) and the drive train [motor 10, 10' - reducer 9 - cylinder 4, 4'] as depicted in Fig. 1 and described on page 4, lines 12 to 13 unambiguously indicate that the speed reduction occurs from motor 10, 10' to cylinder

4, 4'. Similarly the cylinders 3, 3' must be downstream of the same respective reducer 9 as cylinders 4, 4' since page 4, lines 19 to 20 discloses a drive train [reducer 9 - toothed belt drive 9' - synchronisation gear 11] which would not be disclosed in this manner if, as alleged by the respondent, the drive for the respective toothed belt drive 9' were taken directly from the motors 10, 10', rather than from the reducers 9. The respondent's further argument in this regard that the term 'downstream' was to be understood in the context of the function of the reducer, not its location, is not queried. This is also how the Board understands the term 'downstream' in relation to the reducer i.e. that the low speed side of the reducer is its downstream side.

1.2.1 With the cylinders 3, 3', 4, 4' being downstream of the respective reducer 9, the transmission of movement between the shafts 3, 4 and 3', 4' downstream of the reducer is achieved by means of belts 9', 9'. It is immaterial that further components (e.g. the synchronisation gear 11 and cardan shaft 11') are included in the drive trains between the shafts in addition to the belts 9'.

1.2.2 The respondent's further argument that page 4, lines 19 to 20 of E1 simply indicated that the belt 9' was connected to the reducer 9 rather than that this being connected to the low speed side of the reducer i.e. 'downstream', is not accepted. Line 19 states that the drive for the entrance cylinders 3, 3' comes from the middle cylinders 4, 4'. With the cylinders 4, 4' being downstream of the respective reducer 9 (see point 1.2 above) and the cylinders 3, 3' being driven from the cylinders 4, 4', it follows that the low speed side of the reducers 9 must also be the source of the drive for

the cylinders 3, 3'. This is corroborated in line 20 of page 4, where it is stated that 'Hierzu sind von den Getrieben 9 Zahnriemenübertriebe 9' zu einem Getriebe 11 geführt' (in English: To achieve this, the toothed belt drives 9' link the reducers 9 and the synchronisation gear 11) i.e. the low speed side of the reducers drive the toothed belt drives 9'. Any other reading of this sentence would contradict the foregoing statement that the cylinders 3, 3' are driven by the cylinders 4, 4', the latter being located on the low speed side of the reducer.

1.2.3 The respondent's argument that it was the relative circumferential speed of the drafting cylinders, rather than their relative rotational speed, that was important for effective drafting to occur is not questioned. However, this does not change the above conclusion, based on page 4, lines 19 to 20, that the toothed belts 9' of E1 are unambiguously disclosed to be driven from the low speed side of the reducers 9.

1.2.4 The respondent's further contention that E1 disclosed just one single belt in the kinematic chain of the drafting cylinders, i.e. belt 9' rather than plural belts as claimed is not accepted. Indeed, there is just a single belt 9' transmitting the movement between the cylinder 4 and the cylinder 3. However, on the opposite side of the spinning machine, movement between cylinders 4' and 3' is also transmitted by a belt 9'. Claim 1 is drafted broadly enough for the combination of these individual belts on opposite sides of the machine to satisfy the claimed transmission of the movement between the shafts being performed by means of belts.

1.2.5 It thus follows that the claimed feature 'the transmission of the movement between the shafts downstream of the reducer is performed by means of belts' is indeed disclosed in E1.

1.3 Regarding the feature 'a motor of the second and third cylinders is kinematically connected to the second drafting cylinders and to the third drafting cylinders to move these by means of a transmission device', this is not known from E1. Although a kinematic connection is present between the various components (see item 1.1 above), E1 does not unambiguously disclose that the master motor 10' drives the second drafting cylinders and the third drafting cylinders (i.e. the second and the third drafting cylinders not only on the master motor 10' side of the spinning machine but also 3' and 4' on the slave motor 10 side of the spinning machine). The master motor 10' is, in the absence of particular circumstances (see point 1.3.2 below), solely arranged to move the second and third cylinders on its side of the spinning machine, the slave motor 10 being responsible for the movement of the second and third cylinders on the slave motor's side of the machine (see e.g. page 3, lines 18 to 21).

1.3.1 Whilst the master motor is indeed disclosed to be responsible for ensuring that the cylinder speed and its synchronous running on each side of the machine is maintained (see page 3, lines 2 to 10), this does not imply, as an unambiguous corollary, that the second and third cylinders 3' and 4' on the slave motor 10 side of the spinning machine are driven by the master motor 10'. E4, for example, diagramatically indicates how a neutral driving point would exist in the kinematic chain between the two motors 10', 10. This is general knowledge for the skilled person since e.g. any

particular gear tooth can only be engaged for driving on one of its two driving surfaces at any one time. With both the master and the slave motors 10', 10 of E1 being driven with the same signals (see Fig. 1; page 5, lines 12 to 16), the neutral driving point of the kinematic chain would not be so skewed to the slave motor side of the machine that the master motor 10' would drive the cylinders 3' and 4' in addition to cylinders 3 and 4. Indeed, it is clear from page 3, lines 16 to 21 that the system is designed in this way.

1.3.2 In fact, the only circumstances under which the master motor could be envisaged to drive the cylinders 3', 4' on the slave motor side of the machine would be if the slave motor were switched-off, disabled or failed to function properly and have a speed lower than intended by the system design parameters (see also item 1.3.3 below). Under these circumstances the master motor 10' would be the sole motor driving the kinematic chain linking the second and third drafting cylinders on both sides of the machine. However, E1 does not disclose this exceptional situation and this therefore lacks an unambiguous disclosure.

1.3.3 The appellant's argument that the master and slave motors, whilst desirably running identically, would necessarily not constantly do so resulting in the master motor 10' driving the second and third cylinders on both sides of the machine, is not accepted. Page 5, lines 12 to 16 of E1 discloses that all the motors are driven with the same control signal, the consequence being that each motor 10' and 10 will contribute essentially equally to the motion of the kinematic chain linking the second and third cylinders on both sides of the machine. Any derogation from this balanced drive condition would not, under normal operating

circumstances, be expected to be of such magnitude that the neutral driving point would be shifted so far to the slave motor side of the spinning machine that the master motor 10' would be actively driving cylinders 3' and 4'. E1 also fails to suggest any such situation. In this regard it should also be stated that, although the term 'move' is used in this feature of the claim to define the dynamic relationship of the second drafting cylinders and the third drafting cylinders to the motor, the term is understood in context to be synonymous with 'drive'.

1.3.4 The appellant's argument that the mechanical linkage between the two machine sides alone resulted in the master motor 10' driving the second and third cylinders on both sides of the machine is also not accepted. The referenced mechanical linkage is indeed present in E1, yet, in the absence of an exceptional circumstance occurring (as discussed in point 1.3.2 above), there is no unambiguous disclosure of the master motor 10' driving the second and third cylinders on both sides of the machine.

1.3.5 It is accepted that, as pointed out by the appellant, the master motor would correct the movement of the slave motor whenever it diverged from its desired operational set-point (see page 3, lines 5 to 10 of E1). However, such a correction would, not least due motors 10' and 10 being controlled by the same drive signal (page 5, lines 12 to 16), not unambiguously result in the neutral driving point of the kinematic chain moving to such an extent that the cylinders 3', 4' would be driven by the master motor 10'.

1.3.6 E1 therefore fails to disclose the following feature of claim 1:

'a motor of the second and third cylinders is (kinematically) connected to the second drafting cylinders and to the third drafting cylinders to move these by means of a transmission device'.

1.4 The subject-matter of claim 1 is thus novel over E1.

1.5 As regards the novelty of the subject-matter of claim 1 with respect to E3, in its preliminary opinion the Board considered this objection not to be persuasive (see point 1.4 of its communication dated 13 November 2020) and listed four differences:

- The first motor driving a first cylinder on each side of the spinning machine;
- The second motor driving a second cylinder and a third cylinder on each side of the spinning machine;
- The transmission device comprising at least one reducer connected to the motor of the second and third cylinders; and
- A plurality of belts transmitting movement downstream of the reducer between the shafts.

1.5.1 The appellant's argument that any features found not to be explicitly disclosed in E3 would at least be implicitly known is not accepted. Even if spinning machines with drafting cylinders on both side of the machine can be considered as commonplace, such an arrangement does not imply that a first motor would drive the first cylinders on each side of the machine nor that a second motor would drive the second and third cylinders on both sides of the machine. There is also no unambiguous disclosure in E3 that the sprocket 25 and chain 24 are geared to function as a reducer, nor that the 'Verbindungsgetriebe 45' (connecting gear-

train) is a belt.

1.5.2 The appellant presented no further novelty arguments based on E3, stating at oral proceedings that it relied on its written submissions in this regard.

1.5.3 The subject-matter of claim 1 is thus also novel over E3.

1.6 The ground for opposition under Article 100(a) EPC in combination with Article 54 EPC therefore does not prejudice maintenance of the patent as granted.

2. *Inventive step*

The ground for opposition under Article 100(a) EPC in combination with Article 56 EPC also does not prejudice maintenance of the patent as granted.

2.1 *Based on E1 alone*

In its grounds of appeal, the appellant failed to formulate an inventive step argument, stating simply that the subject-matter of claim 1 was not novel over E1 and that therefore it could also not involve an inventive step. In view of the Board's finding that the subject-matter of claim 1 is novel over E1, there is therefore no substantiated inventive step attack starting from E1 on file. At oral proceedings the appellant indicated that it relied on its written submissions in this regard. The Board thus finds that, considering E1 alone, the subject-matter of claim 1 is not obvious.

2.2 *Starting from E3 in combination with the skilled person*

2.2.1 As stated in the Board's preliminary opinion, despite the skilled person knowing that spinning machines generally have two sides for processing the yarn, E3 fails to unambiguously disclose first or second motors driving a first cylinder or a second and a third cylinder respectively on each side of the machine. As a consequence, E3 fails to disclose:

- The first motor driving a first cylinder on each side of the spinning machine;
- The second motor driving a second cylinder and a third cylinder on each side of the spinning machine;
- The transmission device comprising at least one reducer connected to the motor of the second and third cylinders; and
- A plurality of belts transmitting movement downstream of the reducer between the shafts.

This was not further disputed by the appellant.

2.2.2 The paragraph bridging pages 4 and 5 of the grounds of appeal presents the appellant's complete case regarding the subject-matter of claim 1 not involving an inventive step when starting from E3 and combining common general knowledge with this. The appellant alleges solely the last feature in point 2.2.1 not to be known from E3 and this to be an obvious modification based on page 10, lines 13 to 15 which suggests chains and belts to be alternatives.

2.2.3 Even if this allegation were accepted, the appellant's argument fails to indicate how the other differentiating features identified in point 2.2.1 would be reached by the skilled person when starting

from E3. The appellant has not used the problem-solution approach and has provided no other indication as to why or how the skilled person would be motivated to carry out the necessary modifications of E3 in order to reach the subject-matter of claim 1.

2.2.4 Based on the case before it, the Board thus finds that, starting from E3 and combining common general knowledge with this, the subject-matter of claim 1 is not obvious.

2.3 *Starting from E3 in combination with the technical teaching of E1*

2.3.1 The appellant's complete argument in this respect reads as follows:

"Wie oben erläutert sind einige an sich selbstverständliche Merkmale in der E3 nicht explizit offenbart. Im Zweifel finden sich die Merkmale in der E1. Das betrifft die Zweiseitigkeit der Maschine (siehe Titel der E1) und den Antrieb der Walzen des Streckwerks über ein Untersetzungsgetriebe durch Elektromotoren (siehe Seite 4, Zeilen 11 bis 13 der E1)."

This translates as follows:

"As outlined above, several obvious features (of claim 1) are not explicitly disclosed in E3. In case of doubt, the features are to be found in E1. This concerns the two-sided nature of the machine (see the title of E1) and the drive of the drafting cylinders by motors via a reducer (see page 4, lines 11 to 13 of E1)."

2.3.2 The appellant has again not based its arguments on the problem-solution approach and also fails to provide any reasons as to why the skilled person would carry out the necessary modifications of E3 in order to reach the claimed subject-matter. Even if its arguments, as far as they go, were accepted, no argument is provided as to why or how the skilled person would modify E3 to provide a first and second motor kinematically connected to drafting cylinders on each side of the spinning machine. In this respect E1 discloses a second motor on each side of the machine to drive the second and third drafting cylinders on the respective side of the spinning machine only.

2.3.3 When starting from E3 therefore and combining the technical teaching of E1 with this, the skilled person would not be guided to the subject-matter of claim 1 without the exercise of an inventive step.

2.4 At oral proceedings the appellant indicated that, with respect to its inventive step attacks to the subject-matter of claim 1 of the main request, it relied on its written submissions. As shown above, none of these attacks submitted in writing deprives the subject-matter of claim 1 of an inventive step.

2.5 The ground for opposition under Article 100(a) EPC in combination with Article 56 EPC therefore does not prejudice maintenance of the patent as granted.

**Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar: The Chairman:

D. Grundner M. Harrison

Decision electronically authenticated