

Internal distribution code:

- (A) [] Publication in OJ
(B) [] To Chairmen and Members
(C) [X] To Chairmen

D E C I S I O N
of 13 February 1996

Case Number: T 0397/92 - 3.2.4

Application Number: 87905083.9

Publication Number: 0277174

IPC: B65H 16/00

Language of the proceedings: EN

Title of invention:
ANTI-CLOCKSPRINGING APPARATUS AND METHOD

Applicant:
EASTMAN KODAK COMPANY (a New Jersey corporation)

Opponent:
-

Headword:
Anti-clockspringing apparatus/KODAK

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-



Case Number: T 0397/92 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 13 February 1996

Appellant:

EASTMAN KODAK COMPANY
(a New Jersey corporation)
343 State Street
Rochester
New York 14650 (US)

Representative:

Blickle, K. Werner, Dipl.-Ing.
KODAK AKTIENGESELLSCHAFT
Patentabteilung
D-70323 Stuttgart (DE)

Decision under appeal:

Decision of the Examining Division of the European
Patent Office posted 28 November 1991 refusing
European patent application No. 87 905 083.9
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: C. A. J. Andries
Members: P. Petti
J. P. B. Seitz

Summary of Facts and Submissions

I. The European patent application No. 87 905 083.9, filed on 23 July 1987, was refused by a decision of the Examining Division dispatched on 28 November 1991.

The reason the examining division gave for the refusal was that the subject-matter of the independent claims did not involve an inventive step within the meaning of Article 56 EPC.

II. The appellant (applicant) lodged an appeal against this decision on 31 January 1991 and simultaneously paid the appeal fee. The statement setting out the grounds of appeal was filed on 25 March 1992.

III. Oral proceedings were held on 13 February 1996. During the oral proceedings the appellant filed amended Claims 1 to 9 and amended pages 1 and 3 to 6 of the description.

IV. The appellant requested that the impugned decision be set aside and that a patent be granted on the basis of the following documents:

Claims: 1 to 9 as filed during the oral proceedings;

Description: pages 1 (with insert) and 3 to 6 as filed during the oral proceedings; page 2 as originally filed;

Drawings: Figures 1 to 4, 4a, 5 and 6 as originally filed.

V. The independents Claims 1, 4, 6 and 8 read as follows:

"1. An apparatus for preventing clockspringing of a wound roll of web material (20) within a cartridge (10) during storage and shipment, said wound roll of web material (20) being mounted on a central core (24) arranged to rotate on its axis within said cartridge (10), comprising:

an axially extending ring (32) on said cartridge within which end of said core (24) is rotatable;

two enclosed slots (38) arranged diametrically opposed in said axially extending ring (32) of the wall of the cartridge (10);

a plurality of spaced notches (34) on said core (24) lying in a plane transverse to the core axis, each slot (38) being radially alignable with a notch of said plurality of notches (34) upon rotation of said core (24), such that first and second pairs of aligned notches and slots are formed, the slots lying substantially in said transverse plane;

a locking member designed as a flexible clip (40) normally separate and disconnected from said core (24) and said cartridge, said clip (40) having one end manually insertable through the first aligned notch and slot pair and a second opposite end portion manually insertable through the second aligned notch (34) and slot (38) pair located diametrically opposed to said first pair, such that the clip (40), when its end portions are inserted through said pairs of diametrically opposed notches (34) and slots (38), lies substantially in said transverse plane for locking said core (24) to said cartridge;

said first and second end portions of the flexible clip are provided with shoulders (42) which engage with an inner surface (44) of said axially extending ring (32) when the clip (40) is in its locking position, thereby preventing lengthwise movement of the clip (40) out of the notches (34) and slots (38) and inadvertent unlocking of the core (24) from the cartridge (10)"

"4. An apparatus for preventing clockspringing of a wound roll of web material (20) within a cartridge (10) during storage and shipment, said wound roll of web material (20) being mounted on a central core (24) arranged to rotate on its axis within said cartridge (10), comprising:

a plurality of spaced notches (34) on said cores (24), lying in a plane transverse to said core axis;

two enclosed slots (38) in said cartridge (10) arranged diametrically opposed in an axially extending ring (32) of the wall of the cartridge (10), one of said slots (38) being radially alignable with one of said plurality of notches (34) and lying substantially in said transverse plane;

a locking member designed as a flexible clip (40) normally separate and disconnected from said core (24) and said cartridge (10), said clip (40) having a first end portion thereof insertable through said aligned notch (34) and slot (38);

said first end portion of said clip being provided with shoulders (42) engaging with said axially extending ring (32) when the first end portion is inserted through said aligned notch (34) and slot (38), said flexible clip being L-shaped and having an opposite end portion which is flexed and insertable into the core (24) in frictional engagement with the inner periphery of the core, such that the flexible strip, when its first end portion is engaged with said axially extending ring (32) through said aligned notch (34) and slot (38) and its

opposite end portion is in frictional engagement with the inner periphery of the core (24), ensures a positive locking of the core to the cartridge, thereby preventing clockspringing of said roll of web material and preventing lengthwise movement of the clip out of the aligned notch (34) and slot (38) and inadvertent unlocking of the core (24) from the cartridge (10)."

"6. An apparatus for preventing clockspringing of a wound roll of web material (20) within a cartridge (10) during storage and shipment, said wound roll of web material (20) being mounted on a central core (24) arranged to rotate on its axis within said cartridge (10), comprising:

a plurality of spaced notches (34) on said core (24), lying in a plane transverse to said core axis;

two enclosed slots (38) in said cartridge (10) arranged diametrically opposed in an axially extending ring (32) of the wall of the cartridge (10), one of said slots (38) being radially alignable with one of said plurality of notches (34) and lying substantially in said transverse plane;

a locking member designed as a clip (46) normally separate and disconnected from said core (24) and said cartridge (10), said clip (46) having a first end portion thereof insertable through said aligned notch (34) and slot (38) said first portion of said clip being provided with shoulders (42) engaging with said axially extending ring (32) when the first end portion is inserted through said aligned notch (34) and slot (38);

said opposite end portion (50) being provided with a resilient member which is fictionally engageable with the inner periphery of the core (24), such that the clip, when its first end portion is engaged with said axially extending ring (32) through said aligned notch and slot and the resilient member is in frictional engagement with the inner periphery of the core (24),

ensures a positive locking of the core (24) to the cartridge (10), thereby preventing clockspringing of said roll of web material and preventing lengthwise movement of the clip out of the notches (34) and slots (38) and inadvertent unlocking of the core (24) from the cartridge (10)."

"8. Apparatus for preventing clockspringing of a wound roll of web material (20) within a cartridge (51) during storage and shipment, said wound roll of web material being mounted on a central core (58) arranged to rotate on its axis within said cartridge (51), the apparatus comprising:

a cup-shaped recessed wall portion (53) on said cartridge (51), defining a pair of diametrically opposed slots (70) extending through said wall portion,

a plurality of spaced notches (64) on the end surface of said core (58) adapted to be aligned with said slots (70) upon rotation of said core (58),

a locking member designed as a flexible clip (68) separate and disconnected from said core (58) and said cartridge (51), having a first end portion insertable through the first aligned notch (64) and slot (70) pair and a second opposite end portion insertable through the second aligned notch (64) and slot (70) pair located diametrically opposed to said first pair,

the flexible clip being of a length greater than the distance between diametrically opposed aligned slots (70), such that said first end portion of the strip can be inserted through said first aligned notch (64) and slot (70) pair and, following flexing of said flexible clip to shorten the length thereof, the second end portion of the clip can be inserted through said second aligned notch (64) and slot (70) pair, and the cartridge wall being provided on the inside with a ring (62)

forming a stop for the end portions of the clip (68), when these portions are inserted through said pairs of aligned notches (64) and slots (70), thereby preventing inadvertent removal of the clip from its locking position."

Reasons for the Decision

1. The appeal is admissible.

2. *Admissibility of the amendments*

2.1 The present independent Claim 1, which relates to the embodiment according to Figures 1 to 3, is essentially based upon the combination of the features specified in Claims 1, 3 to 5 as originally filed and the features concerning the plurality of spaced notches and the enclosed slots.

The present independent Claims 4 and 6, which relate to the embodiments according to Figures 4 and 4a respectively, are based upon the features of Claim 1 as originally filed and the features concerning the structure of the clip, the plurality of spaced notches and the enclosed slots. Moreover, in Claim 4 the clip is defined as being 'flexible'.

The present independent Claim 8, which relates to the embodiment according to Figures 5 and 6, is essentially based upon the combination of the features specified in Claims 1, 6 and 7 as originally filed and the features concerning the plurality of spaced notches.

Moreover, in all independent claims the clip is defined as being separate and disconnected from the core and

cartridge, i.e. the clip has to be considered as being a completely separate entity which can be mounted on the core and cartridge.

The features that the slots are enclosed and that the core has a plurality of notches can be derived from each of the Figures of the drawings as originally filed. The flexibility of the clip according to Claim 4 can be derived from Figure 4 as originally filed in so far as the L-shape of the clip implies its flexibility in order to put the clip in its locking position.

The structure of the clip according to Claim 4 can be derived from Figure 4 and from the description (page 5, line 33 to page 6, line 2) as originally filed.

The structure of the clip according to Claim 6 can be derived from Figure 4a and from the description (page 6, lines 3 to 9) as originally filed.

2.2 The features of dependent Claims 2, 5, 7 and 9 essentially correspond to the features of Claim 2 as originally filed.

The features of dependent Claim 3 can be derived from Claim 9 and from Figure 3 of the original application.

2.3 The further amendments to the application consist of the adaptation of the description to the amended claims.

2.4 The Board is satisfied that these amendments do not contravene Article 123(2) EPC.

3. *Novelty*

The subject-matter of each independent claim is novel in the meaning of Article 54 EPC with respect to each of the documents cited in the search report.

4. *The closest prior art*

The closest prior art results from the "Research Disclosure", Item No. 16352, November 1977, page 43 (D2). This document discloses an apparatus for preventing clockspringing of a wound roll of web material (10) within a cartridge (14) during storage and shipment, said wound roll of web material (10) being mounted on a central core (12) arranged to rotate on its axis within said cartridge, comprising an axially extending ring (central hub 26) on the cartridge within which the end of the core (12) is rotatable, two slots (44) arranged diametrically opposed with respect to each other on said core (12) and lying in a plane transverse to the core axis; a sliding locking device comprising a pad (36) integrally formed in a cap of the cartridge and a locking member (28, finger 42) slidable within the pad (36), each of the slots (44) being radially alignable with the pad (36) upon rotation of said core, such that a pair of aligned locking apertures is formed, said pair being constituted by one of the slots (44) and the pad (36), said locking member (finger 42) being insertable through each of said aligned slots (44), such that, when the locking member is inserted through said slot, it lies substantially in said transverse plane for locking said core to said cartridge, thereby preventing clockspringing of said roll of web material.

The locking member (28) of the apparatus according to document D2 co-operates with a detent arrangement comprising a pair of vertical tongues (46) and a positioning lug (48), such that the locking member can be retained in its locking position.

5. *Problem and solution*

5.1 The technical problem to be solved, as indicated in the description of the application (page 3, lines 12 to 16), is to provide an anti-clockspringing apparatus which is of simple design and construction, thoroughly efficient and reliable in operation, and economical to manufacture.

5.1.1 The apparatus according to the independent Claim 1 differs from the closest prior art essentially in that it comprises

(a1) two enclosed slots arranged diametrically opposed in the axially extending ring of the cartridge and a plurality of spaced notches arranged on the core;

(b1) each slot being radially alignable with a notch, such that first and second pairs of aligned notches and slots are formed;

(c1) the locking member being designed as a flexible clip which is normally separate and disconnected from said core and said cartridge, the clip having a first end portion of the clip being manually insertable through the first aligned notch and slot pair and a second opposite end portion manually insertable through the second aligned notch and

slot pair, such that the clip, when its end portions are inserted through said pair of diametrically opposed notched and slots lies substantially in said transverse plane;

- (d1) the first and second end portions of the clip being provided with shoulders which engage an inner surface of the axially extending ring when the clip is in its locking position, thereby preventing lengthwise movement of the clip out of the notches and slots and inadvertent unlocking of the core from the cartridge.

5.1.2 The apparatus according to the independent Claim 4 differs from the closest prior art essentially in that it comprises

- (a4) two enclosed slots arranged diametrically opposed in the axially extending ring of the cartridge and a plurality of spaced notches arranged on the core;
- (c4) the locking member being designed as a flexible clip which is normally separate and disconnected from said core and said cartridge, the clip having a first end portion of the clip insertable through the first said aligned notch and slot,
- (d4) the first end portion of the clip being provided with shoulders which engage the axially extending ring when the first portion is inserted through said aligned notch and slot, the clip being L-shaped and having an opposite end portion which is flexed and insertable into the core in frictional engagement with the inner periphery of the core, such that the clip, when its first end portion is engaged with the axially extending ring through said aligned notch and slot and its

opposite end portion is in frictional engagement with the inner periphery of the core, ensures a positive locking of the core to the cartridge, thereby preventing clockspringing of said roll of web material and preventing lengthwise movement of the clip out of the aligned notch and slot and inadvertent unlocking of the core (24) from the cartridge (10).

5.1.3 The apparatus according to the independent Claim 6 differs from the closest prior art essentially in that it comprises

(a6) two enclosed slots arranged diametrically opposed in the axially extending ring of the cartridge and a plurality of spaced notches arranged on the core;

(c6) the locking member being designed as a clip which is normally separate and disconnected from said core and said cartridge, the clip having a first end portion of the clip insertable through the first said aligned notch and slot,

(d6) the first end portion of the clip being provided with shoulders which engage the axially extending ring when the first portion is inserted through said aligned notch and slot, the opposite end portion of the clip being provided with a resilient member fictionally engageable with the inner periphery of the core, such that the clip, when its first end portion is engaged with said axially extending ring through said aligned notch and slot and the resilient member is in frictional engagement with the inner periphery of the core, ensures a positive locking of the core to the

cartridge, thereby preventing clockspringing of said roll of web material and preventing lengthwise movement of the clip out of the notches and slots and inadvertent unlocking of the core from the cartridge.

5.1.4 The apparatus according to the independent Claim 8 differs from the closest prior art essentially in that it comprises

- (a8) a cup-shaped recessed wall portion on the cartridge defining a pair of diametrically opposed slots extending through the wall portion, a plurality of spaced notches arranged on the end surface of the core;
- (b8) each slot being adapted to be aligned with said slots upon rotation of the core, such that first and second pairs of aligned notches and slots are formed;
- (c8) the locking member being designed as a flexible clip which is normally separate and disconnected from said core and said cartridge, the clip having a first end portion of the clip insertable through the first aligned notch and slot pair and a second opposite end portion manually insertable through the second aligned notch and slot pair, the clip being of a length greater than the distance between diametrically opposed aligned slots, such that said first end portion of the clip can be inserted through said first aligned notch and slot pair and, following flexing of said clip to shorten the length thereof, the second end portion of the clip can be inserted through said second aligned notch and slot pair;

(d8) the cartridge wall being provided on the inside with a ring (62) forming a stop for the end portions of the clip, when these portions are inserted through said pairs of aligned notches and slots, thereby preventing inadvertent removal of the clip from its locking position.

5.2 The board is satisfied that each of the combinations of features specified in the independent Claims 1, 4, 6 and 8 solves the above mentioned technical problem.

In this context, the features of the groups a1 to c1, a4 to c4, a6 to c6 and a8 to c8 contribute to simplify the design and the construction of the apparatus. Moreover, the features of the groups d1 to d8 not only co-operate with the corresponding features of the above mentioned groups to simplify the construction of the apparatus but also contribute to improve in a simple way the reliability of the apparatus.

6. *Inventive step*

6.1 Document EP-A-189 168 (D1), which is mentioned together with document D2 in the search report, relates to a cassette used to store a reel of typing ribbon which cassette is provided with a locking member (80) having an operative portion (82). When the locking member is inserted in a slot extending diametrically of the boss (16) upon which the primary spool carrying the unused ribbon is mounted, it provides frictional contact between its operative portion (82) and the primary spool (8), such that rotation of said spool under forces normally occurring during transit is prevented (see page 5, lines 12 to 27; Figures 3 to 6).

Although the locking member according to document D1 can be completely separated from the cassette, it only provides a frictional locking which cannot be compared with the positive locking common to both the apparatus according to the closest prior art and the apparatuses defined in the independent Claims 1, 4, 6 and 8.

Moreover the frictional nature of the locking together with the tapered shape of the operative portion (82) of the locking member cannot prevent inadvertent removal of the locking member from its locking position.

- 6.2 Document US-A-4 210 296 (D4), which is mentioned in the description of the application as filed, relates to inked ribbon cartridges. The description (column 2, lines 29 to 58) and the drawings (Figure 1) refer to a prior art cartridge provided with a locking plug (24) which is completely separable from the cartridge and is insertable in the hollow core of the supply spool (13) between opposite grooves (15) positioned between ribs (14). The plug (24), which provides a positive locking preventing the rotation of the spool, is not positively retained in its locking position and can fall out of the grooves in which it is inserted.

Moreover, document D4 mentions disadvantages of this prior art cartridge which disadvantages result from the fact that the plug can be easily separated from the cartridge. All the solutions disclosed in document D4 for eliminating these disadvantages relate to cartridges in which the locking means is integral with and not separable from the cartridge (see Figures 2 to 5). Therefore, document D4 would not lead the skilled person towards a locking means which is separable from the cartridge and which is positively retained in its locking position.

6.3 The remaining documents US-A-3 784 001 and US-A-3 613 876, which are mentioned in the description of the application as filed, relate to anticlockspringing systems having a frangible connector between the cartridge and the core and located within the cartridge. These documents, therefore, are less relevant than documents D1, D2 and D4 and could not lead a skilled person to the claimed inventions.

6.4 None of the available documents suggests the use of a simple locking clip which is - from the outside of the apparatus - completely separable from the cartridge and the core and which is provided with means for both ensuring a positive locking of the core to the cartridge and preventing inadvertent unlocking of the core from the cartridge.

It would not be possible for a skilled person, on the basis of the available information, to arrive at the subject-matter of each of Claims 1, 4, 6 and 8.

Therefore, having regard to the above mentioned state of the art, the subject-matter of Claims 1, 4, 6 and 8 involves an inventive step in the meaning of Article 56 EPC.

7. A patent can therefore be granted on the basis of independent Claims 1, 4, 6 and 8 and dependent Claims 2, 3, 5, 7 and 9, which define particular embodiments of the inventions defined in the independent claims to which they refer.

Order

For these reasons it is decided that:

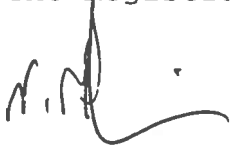
1. The decision under appeal is set aside
2. The case is remitted to the first instance with the order to grant a patent in the following version:

Claims: 1 to 9 as filed during the oral proceedings;

Description: pages 1 (with insert) and 3 to 6 as filed during the oral proceedings; page 2 as originally filed;

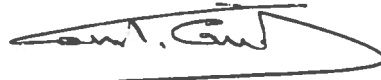
Drawings: Figures 1 to 4, 4a, 5 and 6 as originally filed.

The Registrar:



N. Maslin

The Chairman:



C. Andries

JPS

W