

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
is not binding precedent of the Board.

Paper No. 34

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARVIN B. DAVIS and KENT MURPHY

Appeal No. 1999-1924
Application No. 08/486,545

HEARD: March 22, 2000

Before STONER, Chief Administrative Patent Judge, HAIRSTON and
NASE, Administrative Patent Judges.

NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final
rejection (Paper No. 11, mailed December 12, 1996) of claims 1
and 21 to 27, which are all of the claims pending in this
application.¹

¹ While the examiner in the Advisory Action of February
13, 1997 (Paper No. 14) has approved entry of the amendment to
claims 1 and 27 (Paper No. 13, filed January 24, 1997)

(continued...)

Appeal No. 1999-1924
Application No. 08/486,545

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We REVERSE.

¹(...continued)
submitted subsequent to the final rejection, we note that this amendment has not been clerically entered.

BACKGROUND

The appellants' invention relates to a cartridge loading apparatus for use with a disk drive. A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

The rejections on appeal as set forth in the examiner's answer (Paper No. 24, mailed September 28, 1998) are²:

1. Claims 1 and 21 to 27 stand rejected under the judicially created doctrine of nonstatutory (i.e., obviousness-type) double patenting over claim 1 of U.S. Patent No. 5,684,776, claim 1 of U.S. Patent No. 5,703,857 and claim 1 of U.S. Patent No. 5,724,331 since the claims at issue are not patentably distinct inventions from the issued claims.

2. Claims 1 and 21 to 27 stand provisionally rejected under the judicially created doctrine of nonstatutory double patenting over claim 1 of copending Application No. 08/482,052.

² The rejection of claim 27 under 35 U.S.C. § 112, second paragraph, set forth in the final rejection was overcome by the appellants' amendment after final rejection as noted in the Advisory Action of February 13, 1997 (Paper No. 14).

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the final rejection and the answer for the examiner's complete reasoning in support of the rejections, and to the brief (Paper No. 23, filed November 7, 1997) and reply brief (Paper No. 29, filed November 30, 1998) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, and to the respective positions set forth by the appellants and the examiner. Upon evaluation of all the evidence before us, it is our conclusion that the decision of the examiner to reject claims 1 and 21 to 27 under the judicially created doctrine of double patenting must be reversed. Our reasoning for this determination follows.

Double patenting is a legal doctrine that forbids an inventor from obtaining a second valid patent for either the

same invention or an obvious modification of the same invention claimed in that inventor's first patent. See In re Longi, 759 F.2d 887, 892, 225 USPQ 645, 648 (Fed. Cir. 1985). The basic concept of double patenting is that the same invention cannot be patented more than once since to do so would result in a second patent that would expire some time after the first patent expired and extend the protection timewise. General Foods Corp. v. Studiengesellschaft Kohle mbH, 972 F.2d 1272, 1279-80, 23 USPQ2d 1839, 1845 (Fed. Cir. 1992); In re Kaplan, 789 F.2d 1574, 1579-80, 229 USPQ 678, 683 (Fed. Cir. 1986).

35 U.S.C. § 101 states "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor..." (Emphasis added). The prohibition of double patenting of the same invention is based on 35 U.S.C. § 101. In re Goodman, 11 F.3d 1046, 1052, 29 USPQ2d 2010, 2015 (Fed. Cir. 1993); Longi, 759 F.2d at 892, 225 USPQ at 648. By "same invention," the court means

"identical subject matter." Longi, 759 F.2d at 892, 225 USPQ at 648; In re Vogel, 422 F.2d 438, 441, 164 USPQ 619, 621 (CCPA 1970). A good test, and probably the only objective test, for "same invention," is whether one of the claims would be literally infringed without literally infringing the other. If it could be, the claims do not define identically the same invention. Vogel, 422 F.2d at 441, 164 USPQ at 621-22 (halogen is not the "same" as chlorine; meat is not the "same" as pork). All types of double patenting which are not "same invention" double patenting have come to be referred to as "obviousness-type" double patenting. See In re Van Ornum, 686 F.2d 937, 942-43, 214 USPQ 761, 766 (CCPA 1982), which states in discussing cases leading to Vogel's restatement of the law of double patenting,^{3,4}

numerous cases were considered in which application claims were directed to mere obvious modifications of, or improvements on, inventions defined in the claims of patents already issued to the same inventors, or to common assignees, and it had been decided that they might

³ Vogel, 422 F.2d at 441-42, 164 USPQ at 621-22.

⁴ Judge Rich in Kaplan, 789 F.2d at 1579, 229 USPQ at 682, stated that the restatement of the law of double patenting set forth in Vogel "serves as a good starting place" for deciding the double patenting issue raised in that appeal.

be allowed to go to patent if the applicants filed terminal disclaimers. We classified these as "obviousness type double patenting." This latter classification has, in the course of time, come, somewhat loosely, to indicate any "double patenting" situation other than one of the "same invention" type.

See also General Foods, 972 F.2d at 1279-80, 23 USPQ2d at 1844-45.

"Obviousness-type" double patenting extends the fundamental legal doctrine to preclude "obvious variants" of what has already been patented. See In re Berg, 140 F.3d 1428, 1432, 46 USPQ2d 1226, 1229 (Fed. Cir. 1998); Goodman, 11 F.3d at 1052, 29 USPQ2d at 2015 and General Foods, 972 F.2d at 1280, 23 USPQ2d at 1845. "Obviousness-type" double patenting precludes issuance where there is no "patentable difference" or no "patentable distinction" between the two claims. Goodman, 11 F.3d at 1052, 29 USPQ2d at 2015; General Foods, 972 F.2d at 1278-79, 23 USPQ2d at 1844. This allows the public to practice obvious variations of the first patented invention after the first patent expires. See Longi, 759 F.2d at 892-93, 225 USPQ at 648. The courts adopted the doctrine out of necessity where claims in two applications by the same

inventor were so much alike that to allow the latter would effectively extend the life of the first patent. See Gerber Garment Technology, Inc. v. Lectra Sys., 916 F.2d 683, 686 16 USPQ2d 1436, 1439 (Fed. Cir. 1990); In re Thorington, 418 F.2d 528, 534, 163 USPQ 644, 648 (CCPA 1969), cert. denied, 397 U.S. 1038, 165 USPQ 290 (1970).

In summary, "obviousness-type" double patenting is a judge-made doctrine that prevents an unjustified extension of the patent right beyond the statutory time limit. It requires rejection of an application claim when the claimed subject matter is **not patentably distinct** from the subject matter claimed in a commonly owned patent when the issuance of a second patent would provide an unjustified extension of the term of the right to exclude granted by a patent. In order to overcome an "obviousness-type" double patenting rejection, an applicant may file a "terminal disclaimer," foregoing that portion of the term of the second patent that extends beyond the term of the first. Berg, 140 F.3d at 1431-32, 46 USPQ2d at 1229.

Thus, if a claim sought in the application is not identical to yet **not patentably distinct** from a claim in an inventor's earlier patent, then the claim must be rejected under "obviousness-type" double patenting rejection. See Berg, 140 F.3d at 1431, 46 USPQ2d at 1229; In re Braat, 937 F.2d 589, 592, 19 USPQ2d 1289, 1291-92 (Fed. Cir. 1991); Goodman, 11 F.3d at 1052, 29 USPQ2d at 2015; Vogel, 422 F.2d at 441, 164 USPQ at 622. In determining whether a claim sought in the application is **patentably distinct** from the claims in an inventor's earlier patent a variety of tests have been utilized. In Berg, 140 F.3d at 1433-34, 46 USPQ2d at 1230-31 and In re Emert, 124 F.3d 1458, 1461-62, 44 USPQ2d 1149, 1152 (Fed. Cir. 1997), a "one-way" test was applied. Under this "one-way" test, the examiner asks whether the application claims are obvious over the patent claims. In Goodman, 11 F.3d at 1052-53, 29 USPQ2d at 2015-16 and Van Ornum, 686 F.2d at 942-43, 214 USPQ at 766-67, a test similar to the "one-way" test was applied. Under this test, the examiner asks whether the application claims are generic to any species set forth in the patent claims. In In re

Dembiczak, 175 F.3d 994, 1002, 50 USPQ2d 1614, 1619-20 (Fed. Cir. 1999) and Braat, 937 F.2d at 593-94, 19 USPQ2d at 1292-93, a "two-way" test was applied. Under this "two-way" test, the examiner asks whether the application claims are obvious over the patent claims and also asks whether the patent claims are obvious over the application claims.

We recognize that the examiner's rejections are based in large measure on the decision of the court in In re Schneller, 397 F.2d 350, 158 USPQ 210 (CCPA 1968).⁵ However, it is our view that Schneller does not set forth another test for determining "obviousness-type" double patenting. In that

⁵ Schneller is a rather unusual case in that there was no majority opinion because only Judges Rich and Smith joined the principal opinion, while Judges Worley and Kirkpatrick concurred in the result and Judge Almond wrote a concurring opinion. Thus, the principal opinion therein is of doubtful controlling precedent. As Judge Rich observed in Kaplan, 789 F.2d at 1578, 229 USPQ at 682,

[t]he development of the modern understanding of "double patenting" began in the Court of Customs and Patent Appeals (CCPA) about the time of In re Zickendraht, 319 F.2d 225, 138 USPQ 22 (CCPA 1963), a rather unusual case is [sic, in] that there was no majority opinion because only two judges joined each of the two principal opinions. Neither opinion therein, therefore, can be regarded as controlling precedent in this court.

regard, it is clear to us that the court in Schneller was concerned with whether or not the invention claimed in the patent was **independent and distinct** from the invention of the appealed claims.⁶ While the court in Schneller did use a "cover" test⁷ in making the determination that the invention claimed in the patent was not **independent and distinct** from the invention of the appealed claims, we are of the view that the term "cover" was used by the court as synonymous with not patentably distinct. Thus, under the "cover" test, one would ask whether the application claims are **covered** by (i.e., not patentably distinct from) the claims of the patent. To the extent that Judge Rich in Schneller was setting forth a domination theory⁸ of double patenting, we note that Judge

⁶ See Schneller, 397 F.2d at 354, 158 USPQ at 214-15.

⁷ As set forth in the Manual of Patent Examining Procedure (MPEP) § 804, one part of the test is whether patent protection for the invention, fully disclosed in and **covered** by the claims of the reference, would be extended by the allowance of the claims in the later filed application.

⁸ A first patent or application "dominates" a second patent or application when the first patent or application has a broad or generic claim which fully encompasses or reads on an invention defined in a narrower or more specific claim in
(continued...)

Rich in Kaplan, 789 F.2d at 1577-78, 229 USPQ at 681-82, set forth the Courts opinion that "[d]omination is an irrelevant fact." In any event, it is our view that Schneller did not establish a rule of general application and thus is limited to the particular set of facts set forth in that decision. In fact, the Court in Schneller, 397 F.2d at 355, 158 USPQ at 215, cautioned against the tendency to freeze into rules of general application what, at best, are statements applicable to particular fact situations.

Accordingly, the question before us in this appeal is whether the application claims are **patentably distinct** from claim 1 of U.S. Patent No. 5,684,776, claim 1 of U.S. Patent No. 5,703,857; claim 1 of U.S. Patent No. 5,724,331; and claim 1 of copending Application No. 08/482,052.

With respect to the rejections before us, the examiner has stated the following:

⁸(...continued)
the second patent or application.

While Appellant has presented claims of varying scope such as including the bias coil arm in the instant application, the actual improvement over the prior art centers around the inclined loading and unloading of the disk hub onto the spindle magnet. The other sub-components, such as the bias coil assembly, door links, cartridge receiver latch, and parking arm, which are known in the art per se, have been reconfigured to cooperate with the cartridge loading mechanism and their inclusion (in different permutations) in the claims of the five applications does not create patentably distinct inventions. Therefore, these claims drawn to a single disclosed embodiment of the invention are considered to be mere obvious variant ways of claiming the same invention within the scope of the meaning of the judicially created doctrine of "obviousness-type" double patenting. [Answer, p. 13].

[T]he inventions set forth in the claims of all five applications are all covering the same invention, are all drawn to obvious variants of the same single disclosed embodiment, and are not independent and distinct from each other. [Answer, p. 42].

It is the Examiner's position that the claims of the instant application, the claims of the three issued patents, and the claims of application 08/482,052 are not independent and distinct. It is notable that throughout the prosecution of the earliest filed application, no requirement for restriction was made, even though claims drawn to the same scope as now found in the later four applications were present, because they were all drawn to the same, single disclosed embodiment of the invention. The public policy considerations underlying 35 U.S.C. 121 permit separate patents on "independent and distinct" inventions which are initially "claimed in one application." [Answer, p. 48].

If ABC and XYZ are independent and distinct inventions, Appellant can choose to only claim ABC in the

earlier application and only claim XYZ in a later, voluntarily filed divisional application and the question of obviousness-type double patenting would not apply. The real issues are whether the applicant disclosed a single invention or independent and distinct inventions, and whether the inventor of a single invention should be able, through "artful" claim drafting, to obtain an additional patent term or terms on a single invention. In the instant case, the claims of the issued patents and the copending applications were present in the parent application 08/296,794 (U.S. Patent 5,724,331) and no restriction requirement was made, because the claims were drawn to a single disclosed embodiment of the invention. [Answer, p. 50].

Attached to this decision in Appendix A is a side-by-side analysis of the claims of the instant application and U.S. Patent Nos. 5,684,776; 5,703,857; 5,724,331 and copending application 08/482,052. In this analysis, only the limitations in U.S. Patent Nos. 5,684,776; 5,703,857; 5,724,331 and copending application 08/482,052 that are not present in the instant application are bold print highlighted.

Our review of the claims under appeal and claim 1 of U.S. Patent No. 5,684,776; claim 1 of U.S. Patent No. 5,703,857; claim 1 of U.S. Patent No. 5,724,331; and claim 1 of copending

Application No. 08/482,052 leads us to conclude that, absent the presence of additional evidence not before us in this appeal, the claims under appeal are **patentably distinct** from (1) claim 1 of U.S. Patent No. 5,684,776; (2) claim 1 of U.S. Patent No. 5,703,857; (3) claim 1 of U.S. Patent No. 5,724,331; and (4) claim 1 of copending Application No. 08/482,052. In that regard, from a review of Appendix A it is quite clear that only claims in the present application recite a cartridge loading apparatus having a bias coil arm including a bias coil assembly and a lever arm engageable with a notch formed in one of the first or second sliders as set forth in claim 1 under appeal. Thus, claim 1 and claims 21 to 27 dependent thereon are **patentably distinct** from claim 1 of U.S. Patent No. 5,684,776, claim 1 of U.S. Patent No. 5,703,857; claim 1 of U.S. Patent No. 5,724,331; and claim 1 of copending Application No. 08/482,052 in the absence of any evidence establishing that the claimed bias coil arm was known in the art. While the examiner has stated that sub-components, such as the bias coil assembly, door links, cartridge receiver

latch, and parking arm, are known in the art per se, the examiner has not produced any evidence that the claimed bias coil arm was so much as known in the art, much less that it would have been obvious to add such a bias coil assembly to the inventor's previously claimed subject matter.⁹

In summary, the examiner has failed to establish that the claims under appeal are not patentably distinct from claim 1 of U.S. Patent No. 5,684,776; claim 1 of U.S. Patent No. 5,703,857; claim 1 of U.S. Patent No. 5,724,331; and claim 1 of copending Application No. 08/482,052. Likewise, the examiner has failed to establish that the claims under appeal are obvious from or generic to claim 1 of U.S. Patent No. 5,684,776; claim 1 of U.S. Patent No. 5,703,857; claim 1 of U.S. Patent No. 5,724,331; and claim 1 of copending Application No. 08/482,052. Furthermore, it is our view that

⁹ While the examiner did not require restriction between the claims that were pending in Application No. 08/296,794 (now U.S. Patent 5,724,331), as far as we are able to determine there was no reason why it would not have been proper for the examiner to have made a restriction requirement under the criteria of distinctness set forth in MPEP § 806.05(c).

the facts of this case are sufficiently different from the facts present in Schneller that a double patenting rejection in this application is inappropriate. Accordingly, the decision of the examiner to reject claims 1 and 21 to 27 under the judicially created doctrine of nonstatutory (i.e., obviousness-type) double patenting over claim 1 of U.S. Patent No. 5,684,776, claim 1 of U.S. Patent No. 5,703,857 and claim 1 of U.S. Patent No. 5,724,331 is reversed and the decision of the examiner to provisionally reject claims 1 and 21 to 27 under the judicially created doctrine of nonstatutory double patenting over claim 1 of copending Application No. 08/482,052 is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1 and 21 to 27 is reversed.

REVERSED

BRUCE H. STONER, JR.)	
Chief Administrative Patent Judge)	
))	
)	
)	
)	BOARD OF PATENT
KENNETH W. HAIRSTON)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
)	
JEFFREY V. NASE)	
Administrative Patent Judge)	

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APPENDIX A

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2\154\331

2\103\821

08\485\025

2\084\110

end of the disk drive
the cartridge loading
forward end adjacent
side having a
channel, said first
with said first side
adjacent associated
a first side

of the disk drive
cartridge loading end
end adjacent the
having a forward
a first side

end of the disk drive
the cartridge loading
forward end adjacent
first side having a
side channel, said
within contained
adjacent associated
a first side

end of the disk drive
the cartridge loading
forward end adjacent
first side having a
side channel, said
within contained
adjacent associated
a first side

end of the disk drive
the cartridge loading
forward end adjacent
side having a
channel, said first
with said first side
adjacent associated
a first side

assembly cartridge;
the fine section
end for acting upon
end and a bearing
including a jacking
side bearing arm
bearing arm axis,
base base about a
secured to side
arm rotationally
a bearing
a central part;
storage disk having
information
over an
base for movement
relative to said base
assembly cartridge
a fine section
rotationally and bearing
means for

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08/486,545	5,724,331	5,703,857	08/482,052	5,684,776
one of said first and second sliders having a notch formed therein, a bias coil arm rotatably secured to said base plate, said bias coil arm including a bias coil assembly and having a lever arm extending therefrom, said lever arm being engageable with said notch in said one of said first and second sliders so that when said one slider is activated, said bias coil arm turns to correspondingly position the bias coil	said second slider having only one S-shaped slot formed herein;	parking arm;		

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central part;
storage disk having a
an information
assembly relative to

2\254\331

**connection:
resistance impking
a second low-
therein to provide
shaded slot formed
having only one 2-
shifter further
said second**

2\203\821

said
a first rotation of
second shifter, so that
forward end of said
associated with said
tiller being swingably
second end of said
first shifter, and said
forward end of said
associated with said
being swingably
end of said tiller
second end, said first
a first end and a
a tiller having

08\485\025

said
a first rotation of
second shifter, so that
forward end of said
associated with said
tiller being swingably
second end of said
first shifter, and said
forward end of said
associated with said
being swingably
end of said tiller
second end, said first
a first end and a
a tiller having

2\084\110

said
a first rotation of
second shifter, so that
forward end of said
associated with said
tiller being swingably
second end of said
first shifter, and said
forward end of said
associated with said
being swingably
end of said tiller
second end, said first
a first end and a
a tiller having

rotation of said
shifter, so that a first
end of said second
with said forward
swingably associated
tiller being
second end of said
first shifter, and said
forward end of said
associated with said
being swingably
end of said tiller
second end, said first
a first end and a
a tiller having

said tiller in a
a first rotation of
second shifter, so that
forward end of said
impked with said
tiller being swingably
second end of said
first shifter, and said
forward end of said
impked with said
being swingably
end of said tiller
second end, said first
a first end and a
a tiller having

said
a first rotation of
second shifter, so that
forward end of said
associated with said
tiller being swingably
second end of said
first shifter, and said
forward end of said
associated with said
being swingably
end of said tiller
second end, said first
a first end and a
a tiller having

said
a first rotation of
second shifter, so that
forward end of said
associated with said
tiller being swingably
second end of said
first shifter, and said
forward end of said
associated with said
being swingably
end of said tiller
second end, said first
a first end and a
a tiller having

said
a first rotation of
second shifter, so that
forward end of said
associated with said
tiller being swingably
second end of said
first shifter, and said
forward end of said
associated with said
being swingably
end of said tiller
second end, said first
a first end and a
a tiller having

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tiller in a first direction about a tiller axis drives said first slider toward the cartridge loading end of the disk drive while driving said second slider toward the remote end of the disk drive, and a second rotation of said tiller in a second direction about said tiller axis drives said first slider toward the remote end of the disk drive while driving said second slider toward the cartridge loading end of the disk drive;	first direction about a tiller axis drives said first slider toward the cartridge loading end of the disk drive while driving said second slider toward the remote end of the disk drive, and a second rotation of said tiller in a second direction about said tiller axis drives said first slider toward the remote end of the disk drive while driving said second slider toward the cartridge loading end of the disk drive;	tiller in a first direction about a tiller axis drives said first slider toward the cartridge loading end of the disk drive while driving said second slider toward the remote end of the disk drive, and a second rotation of said tiller in a second direction about said tiller axis drives said first slider toward the remote end of the disk drive while driving said second slider toward the cartridge loading end of the disk drive;	tiller in a first direction about a tiller axis drives said first slider toward the cartridge loading end of the disk drive while driving said second slider toward the remote end of the disk drive, and a second rotation of said tiller in a second direction about said tiller axis drives said first slider toward the remote end of the disk drive while driving said second slider toward the cartridge loading end of the disk drive;	tiller in a first direction about a tiller axis drives said first slider toward the cartridge loading end of the disk drive while driving said second slider toward the remote end of the disk drive, and a second rotation of said tiller in a second direction about said tiller axis drives said first slider toward the remote end of the disk drive while driving said second slider toward the cartridge loading end of the disk drive;
a cartridge receiver for receiving a respective cartridge containing the disk, said cartridge	a cartridge receiver for receiving a respective cartridge containing a disk with a central hub,	a cartridge receiver for receiving a respective cartridge containing a disk with a central hub	a cartridge receiver for receiving a respective cartridge containing a disk with a central hub	a cartridge receiver for receiving a respective cartridge containing the disk, said cartridge

5,724,331

5,703,857

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5,684,776

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for providing a
controllable force
to said tiller so that
the tiller is
controllably
rotated about said
tiller axis;
a gear train
interposed between
said drive means
and said tiller, said
gear train directly
transmitting said
controllable force
provided by said
drive means, said
gear train thereby
providing an
efficient transfer of
said controllable
force; and

a receiver
latch rotatably
attached to said
base plate, said
receiver latch
engaging said
second slider and
holding said second
slider in a

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2\334\331

2\303\821

08\485\025

2\984\116

associated with said
obersively
s cam

filler and said gear
associated with said
s cam oberatively

associated with said
obersively
s cam

associated with said
obersively
s cam

associated with said
obersively
s cam

lower position; and
receiver in said
place said cartridge
moved forward to
spider may be
so that said second
said second spider
receiver latch from
disengage said
receiver latch to
forward said
door link is moved
said at least one
receiver latch when
engage said
being aligned to
least one door link
rib lug of said at
said latch-release
ribber position;
receiver in said
said cartridge
second spiders place
while said first and
rearward position

with the disk.
bias coil assembly
movement of the
while coordinating
the shingle magnet
the central hub from
needed to remove
reduce the force
thereon to thereby
unloosening the disk
locking and
a shingle magnet for
is inclined relative to
that the central hub
said vertical path so
and disk move along
respective carriage'
carriage receiver'
positions' said
said rubber and lower
receiver between
said carriage
second spigets move
when said first and
tiller axis so that
said tiller spout said
tiller for rotating

second spigets.
said first and
needed to drive
requiring the force
contribute to
spots further.
respective 2-spiged
provided by the
linking connections
low-resistance
first and second
magnet while said
hub from a shingle
remove the central
the force needed to
to thereby reduce
path while tilting
a non-horizontal
and disk move along
respective carriage'
carriage receiver'
positions' said
said rubber and lower
receiver between
said carriage
second spigets move
when said first and
tiller axis so that
said tiller spout said
tiller for rotating

positioning of the
path' said inclined
non-horizontal
moving along said
inclined and
carriage is
said respective
shutter door when
to engage the
link being aligned
at least one door
shingle magnet' said
inclined relative to a
caused to be
central hub is
path so that the
said non-horizontal
and disk move along
respective carriage'
carriage receiver'
positions' said
said rubber and lower
receiver between
said carriage
second spigets move
when said first and
tiller axis so that
said tiller spout said
tiller for rotating

requiring the force
of the disk thereby
inclined positioning
vertical path' said
moving along said
inclined and
carriage is
said respective
shutter door when
to engage the
link being aligned
at least one door
shingle magnet' said
inclined relative to a
is caused to be
that the central hub
said vertical path so
and disk move along
respective carriage'
carriage receiver'
positions' said
and said lower
said rubber position
receiver between
said carriage
second spigets move
when said first and
tiller axis so that
said tiller spout said
tiller for rotating

with said one of
said banking arm
by interaction of
assembly carriage
line actuator.
movement of the
while coordinating
the shingle magnet
the central hub from
needed to remove
requiring the force
thereon thereby
unloosening the disk
locking and
a shingle magnet for
is inclined relative to
that the central hub
said vertical path so
and disk move along
respective carriage'
carriage receiver'
positions' said
said rubber and lower
receiver between
said carriage
second spigets move
when said first and
tiller axis so that
said tiller spout said
tiller for rotating

081486'242

2'1354'331

2'103'821

081485'025

2'084'110

08/486,545	5,724,331	5,703,857	08/482,052	5,684,776
		disk thereby reducing the force needed to remove the central hub from the spindle magnet while the disk is moved between said upper and lower positions.	needed to remove the central hub from the spindle magnet while the disk is moved between said upper and lower positions.	said first and second sliders; and
				a jaw member positioned proximate said linking end of said parking arm, said jaw member
				having a first side and a second side which straddle said lug means so that when said one slider is moved toward the cartridge loading end of the disk

08/486,545	5,724,331	5,703,857	08/482,052	5,684,776	drive, said lug means engages one of the sides of said jaw member thereby rotating said parking arm about said parking axis so that the pressing end of said parking arm acts against the fine actuator assembly carriage which is thereby moved away from the cartridge loading end of the disk drive allowing said respective cartridge to be loaded therein.	21. The cartridge loading apparatus according to claim 1 wherein the maximum distance
						21. The cartridge loading apparatus according to claim 1 wherein the maximum distance
						21. The cartridge loading apparatus according to claim 1 wherein the maximum distance
						21. The cartridge loading apparatus according to claim 1 wherein the maximum distance

08\486'242

the filler:
a skirt portion of
drawn to abutting
and 27 are further
Claims 26
cartridge
unloading a disk
loading and
to a method of
and 22 are drawn
Claims 24
similar to claim 8.
Claim 23 is
the abbasata.
of manufacturing
drawn to a method
Claim 20 is

2'254'331

2'203'822

08\485'025

2'084'110

means for rotating
electric ejection
further abecies
Claim 28
stobs.
links and door link
drawn to the door
27 are further
Claims 25-

rotating the filler:
ejection means for
drawn to electric
Claim 26 is

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08\486\242

2\254\331

is in the drive.
when the cartridge
remaining visible
the cartridge
drawn to a label of
Claim 7 is

2\203\822

is in the drive.
when the cartridge
remaining visible
the cartridge
drawn to a label of
Claim 30 is
the filler.

08\485\025

2\084\110

is in the drive.
when the cartridge
remaining visible
the cartridge
drawn to a label of
Claim 27 is

receiver latch.
drawn to the
20 are further
Claims 25-

one of the ejection
button that moves
operated ejection
to a manually
Claim 22 is drawn

position.
and becomes their
cartridge receiver
bins of the
drawn to lifting
Claim 31 is

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