

US008909094B2

(12) United States Patent

Yamada et al.

(10) Patent No.:

US 8,909,094 B2

(45) **Date of Patent:**

*Dec. 9, 2014

(54) SEALING MEMBER, TONER ACCOMMODATING CONTAINER AND IMAGE FORMING APPARATUS

(75) Inventors: Yusuke Yamada, Ibaraki-ken (JP); Yutaka Ban, Tokyo (JP); Katsuya Murakami, Ibaraki-ken (JP); Fumio

Tazawa, Chiba-ken (JP); Hironori Minagawa, Ibaraki-ken (JP)

(73) Assignee: Canon Kabushiki Kaisha, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

This patent is subject to a terminal dis-

claimer.

(21) Appl. No.: 13/617,050

(22) Filed: **Sep. 14, 2012**

(65) Prior Publication Data

US 2013/0011159 A1 Jan. 10, 2013

Related U.S. Application Data

(60) Division of application No. 13/231,388, filed on Sep. 13, 2011, now Pat. No. 8,290,394, which is a division

(Continued)

(30) Foreign Application Priority Data

Feb. 19, 2001	(JP)	 2001-042536
Jun. 28, 2001	(JP)	 2001-197546

(51) **Int. Cl.** *G03G 15/08* (2006.01)

(52) **U.S. Cl.**

CPC **G03G 15/0837** (2013.01); G03G 2215/0678 (2013.01); G03G 2215/0668 (2013.01); **G03G** 15/0839 (2013.01); **G03G 15/0834** (2013.01); G03G 2221/1657 (2013.01); G03G 2215/0692 (2013.01)

USPC 399/106

(58) Field of Classification Search

CPC G03G 15/0834; G03G 15/0837; G03G 15/0839; G03G 2221/1657; G03G 2215/0678; G03G 2215/0692; G03G 2215/0668

See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

4,060,105 A 11/1977 Feldeisen et al. 4,219,222 A 8/1980 Brusadin

(Continued)

FOREIGN PATENT DOCUMENTS

CA 2300202 2/1999 CN 1237405 C 1/2006

(Continued)

OTHER PUBLICATIONS

Defendant Color Imaging, Inc.'s Invalidity Contentions Pursuant to Local Patent Rule 4.3, dated May 8, 2012, in Case No. 1:11-cv-03855-RLV in the United States District Court, Northern District of Georgia, Atlanta Division.

(Continued)

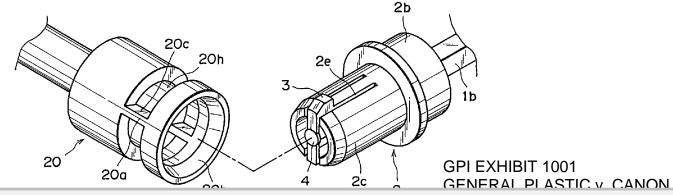
Primary Examiner — Susan Lee

(74) Attorney, Agent, or Firm — Fitpatrick, Cella, Harper & Scinto

(57) ABSTRACT

A toner supply container includes a rotatable container body and a sealing member provided at its axial end portion. The sealing member is movable in an axial direction and includes a sealing portion to seal and unseal an opening of the container body when in first and second relative positions, respectively, and a coupling portion positioned to receive a rotational drive force for rotating the sealing member and the container body. The coupling portion includes an elastically displaceable supporting portion, an engaging portion, and a displacing force receiving portion, which are integrally molded. The engaging portion includes a rotational force receiving portion for receiving a rotational drive force for rotating the sealing member and the container body, and a locking portion. The displacing force receiving portion is provided on the supporting portion at a position closer to the container body than the engaging portion.

53 Claims, 34 Drawing Sheets





Relat	ed U.S. A	application Data	5,966,010	A	10/1999	Loy et al.
		981,785, filed on Dec. 30, 2010,	5,966,574			Ui et al.
		901, which is a division of	5,970,290 6,003,675		12/1999	Yoshiki et al. Maruyama et al.
		,012, filed on Nov. 9, 2009, now	6,027,097		2/2000	Humphreys
		nich is a division of application	6,032,013			Niizawa
		on Jul. 9, 2008, now Pat. No.	6,040,523 6,049,685			Cunningham Murakami et al.
		a division of application No.	6,056,577			Blanchet
		Aug. 10, 2005, now Pat. No.	6,064,846			Wang et al.
		a division of application No.	6,067,432 6,075,963			Huang Ichikawa et al.
		May 6, 2003, now Pat. No.	6,079,593			Konrad
		s a continuation-in-part of	6,091,912			Kitajima et al.
		6,430, filed on Feb. 19, 2002,	6,097,903 6,118,951			Yahata et al. Kato et al.
now Pat. No.			6,128,453			Ban et al.
			6,131,008			Kanamori et al.
ı	Referen	ces Cited	6,131,961 6,137,972			Heilmann Playfair et al.
IIC	DATENIT	DOCLIMENTS	6,151,432			Nakajima et al.
0.5.	PAIENI	DOCUMENTS	6,151,471		11/2000	Yahata et al.
4,342,282 A	8/1982	Yamashita et al.	6,152,304			Hikita et al.
4,821,875 A	4/1989	Groves et al.	6,168,467 6,185,401		1/2001 2/2001	Kanamori et al.
4,878,603 A		Ikesue et al.	6,199,913		3/2001	
4,902,045 A 4,917,237 A		McGugan et al. Groves et al.	6,224,270	В1		Nakajima et al.
4,937,628 A *		Cipolla et al 399/106	6,249,501 6,259,874			Nakamura et al. Murakami et al.
4,941,022 A		Ohmura et al.	6,266,505			Ban et al.
4,971,193 A 4,979,645 A		Groves et al. Groves et al.	6,289,193	B1		Ban et al.
4,981,218 A		Ban et al.	6,289,195			Ichikawa et al.
4,990,964 A		Kraehn	6,292,644 6,298,208			Goto et al. Kawamura et al.
5,068,496 A		Favalora Kaieda et al.	6,314,261			Omata et al.
5,089,854 A 5,154,212 A	10/1992		6,334,037		12/2001	
5,177,539 A	1/1993		6,412,163 6,418,293			Russell Ichikawa et al.
5,177,540 A		Honda et al.	6,501,990			Sundberg et al.
5,200,787 A 5,218,407 A		Nishiguchi Matsushita et al.	6,533,468	B2	3/2003	Nakajima et al.
5,235,389 A		Kikuchi et al.	6,648,715 6,659,680		11/2003 12/2003	Wiens et al. Wyer
5,248,847 A		Aoyama	6,698,966			Hilton et al.
5,268,722 A 5,296,900 A	12/1993	Ikkatai et al. Saijo et al.	6,766,133	B1	7/2004	Ban et al.
5,351,728 A		Ban et al.	6,871,588		3/2005 4/2005	Sasaki et al.
5,383,502 A		Fisk et al.	6,874,220 6,879,789			Yamada et al.
5,455,662 A 5,495,323 A		Ichikawa et al. Meetze, Jr.	6,920,298		7/2005	Yamada et al.
5,513,679 A		Yamada	6,944,417			Yamada et al.
5,515,143 A		Shiotani	6,950,621 6,990,301		9/2005 1/2006	
5,528,349 A 5,557,382 A	6/1996	Satake Tatsumi et al.	6,990,302	B2	1/2006	Toba et al.
5,579,101 A		Omata et al.	6,993,273			Yamada
5,593,224 A		Ruckert	7,127,193 7,245,852			Yamada et al. Takawa
5,598,254 A 5,609,101 A	1/1997 3/1997	Ikesue et al. Oyama et al.	7,324,777	B2	1/2008	Yamada et al.
5,630,570 A		Lacroix et al.	7,376,369		5/2008	Yamada et al.
5,655,180 A	8/1997	Yasuda et al.	7,382,997 7,386,251		6/2008 6/2008	Yamada et al. Yamada et al.
5,692,652 A	12/1997	Wise Yoshiki et al.	7,430,384			Yamada et al.
5,765,079 A 5,785,545 A	7/1998		7,433,633		10/2008	Yamada et al.
5,794,108 A	8/1998	Yoshizawa et al.	7,469,113 7,474,866		1/2008	Yamada et al. Doi et al.
5,812,915 A		Farkash	7,505,718			Kawamura et al.
5,822,663 A 5,823,814 A	10/1998	Ichikawa et al. Alwine	7,647,012			Yamada et al.
5,828,935 A		Tatsumi et al.	7,890,027 7,965,963		2/2011 6/2011	Yamada et al 399/262 Yamada et al.
5,852,760 A		Harris et al.	2001/0008593		7/2001	
5,853,814 A 5,857,129 A	1/1998	Murphy Harris	2002/0044795	A1	4/2002	Kato
5,870,652 A		Kanamori et al.	2004/0009017			Yoshino et al.
5,890,040 A	3/1999		2005/0169674	Al	8/2005	Yoshino et al.
5,903,806 A 5,907,756 A	5/1999 5/1999		FC	REIG	N PATE	NT DOCUMENTS
5,907,730 A 5,909,609 A		Yahata et al.	re	MUIU	TALE.	III DOCOMENTO
5,909,610 A	6/1999	Yoshiki et al.	EP		260 A2	7/1998
5,915,155 A 5,918,090 A	6/1999	Shoji et al. Ichikawa et al.	EP EP		137 A1	2/1999 2/1999
5,510,050 A	0,1222	ionnawa et ai.	LF	0 89/	138 A1	2/1999



(56)

(56)	References Cited					
	FOREIGN PATE	NT DOCUMENTS				
EP EP EP GB JP JP JP JP	1 041 454 A1 1 041 455 A2 0796405 B1 2 287 100 A 63-135359 1-29745 3-256058 4-112474 5-75768 8-211719 9-222786	10/2000 10/2000 2/2001 9/1995 6/1988 9/1989 11/1991 9/1992 3/1993 8/1996 8/1997				
PPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP	9-274366 10-48936 10-63076 10-63084 10-68076 11-2744 11-73000 11-73001 11-73002 11-102109 2002-42384 2002-318490	10/1997 2/1998 3/1998 3/1998 3/1998 1/1999 3/1999 3/1999 4/1999 2/2002 10/2002				

OTHER PUBLICATIONS

Defendant General Plastic Industrial Co., Ltd.'s Invalidity Contentions Pursuant to Local Patent Rule 4.3, dated May 8, 2012, in Case No. 1:11-cv-03855-RLV in the United States District Court, Northern District of Georgia, Atlanta Division.

Notice of Acceptance dated May 21, 2012, in Australian Application No. 2010201088.

Notice of Acceptance dated May 21, 2012, in Australian Application No. 2010201089.

Notice of Acceptance dated May 21, 2012, in Australian Application No. 2010201091.

Konica Parts Catalog, Model 7020, 1st Edition, Feb. 2000, CMPC-7020, Konica Business Technologies, Inc., and seven (7) sheets of annotated illustrations and photographs of Konica 7020 and 8050 toner bottles along with a cover sheet.

European Search report dated Nov. 17, 2008 in European Application No. 08163935.3-2209/1993003.

Austrian Patent Office Written Opinion dated Nov. 21, 2008, forwarded in Singapore Application No. 200602933-4 on Dec. 18, 2008. European Search report dated Mar. 24, 2009 in European Application No. 09151710.2-2209.

Search and Examination Report from the Intellectual Property Office of Singapore, dated Jul. 23, 2009, for Singapore Patent Application No. 200604752-6, which forwards Austrian Search Report and Written Opinion, both dated Jun. 22, 2009, prepared by the Austrian Patent and Trademark Office.

Search and Examination Report from the Intellectual Property Office of Singapore, dated Apr. 26, 2007, for Singapore Patent Application No. 200602934-2, which forwards Danish Search and Examination Reports, both dated Apr. 11, 2007, prepared by the Danish Patent and Trademark Office.

Invitation to Respond to Written Opinion from the Intellectual Property Office of Singapore, dated Apr. 17, 2007, for Singapore Patent Application No. 200407942-2, which forwards Australian Search Report and Written Opinion, both dated Mar. 15, 2007, prepared for the Intellectual Property Office of Singapore.

Australian Patent OFfice Examiner's First Report, for Australian Patent Application No. 2005201134, dated Sep. 18, 2006.

Letter from the Intellectual Property Office of Singapore, dated Apr. 18, 2006, for Singapore Patent Application No. 200201079-1, which forwards Austrian Patent Office Supplementary Search Report, dated Mar. 9, 2006.

Invitation to Respond to Written Opinion from the Intellectual Property Office of Singapore, dated Jan. 14, 2008, for Singapore Patent

Application No. 200602933-4, which forwards Austrian Search Report and Written Opinion, both dated Dec. 14, 2007, prepared by the Austrian Patent and Trademark Office.

Third-Party Observation filed in corresponding Japanese Laid-Open Publication No. 2002-318490, laid open Oct. 31, 2002 (Application No. 2002-42384).

Canadian Patent Office Search Report, dated Feb. 20, 2004, for Canadian Application No. 2,372,419.

Search and Examination Report from the Intellectual Property Office of Singapore, dated Jan. 31, 2004, for Singapore Patent Application No. 200201079-1, which forwards Austrian Patent Office Search Report and Written Opinion, both dated Dec. 22, 2003, prepared by the Austrian Patent Office.

Notification of the First Office Action from the State Intellectual Property Office of the People's Republic of China, dated Jul. 13, 2007, for Chinese Application No. 2005100702734.

Notification of the First Office Action from the State Intellectual Property Office of the People's Republic of China, dated Jul. 13, 2007, for Chinese Application No. 2005100702749.

Notification of the First Office Action from the State Intellectual Property Office of the People's Republic of China, dated Jul. 13, 2007, for Chinese Application No. 2005100702753.

Japanese Office Action, dated Mar. 17, 2007, issued in Japanese Application No. 2006-211509 (English excerpt translation provided).

European Search Report, dated Jan. 18, 2006, issued in European Application No. 02 003 651.3-2209.

European Search Report, dated Sep. 3, 2007, issued in European Application No. 02 003 651.3-2209.

Examination Report dated Dec. 10, 2009, prepared by the Austrian Patent Office and forwarded with a Search and Examination Report dated Jan. 8, 2010, in counterpart Singapore Application No. 200602933-4.

Extended European Search Report dated Feb. 18, 2010, in counterpart European Application No. 08163934.6-2209/1993002.

Rejection Decision dated Feb. 12, 2010, in counterpart Chinese Application No. 200510070274.9.

Communication dated Dec. 10, 2010, forwarding a European Search Report dated Dec. 6, 2010, in counterpart European Patent Application No. 10162683.6-2209/2216690.

Communication dated Dec. 15, 2010, forwarding a European Search Report dated Dec. 6, 2010, in counterpart European Patent Application No. 10182966.1-2209/2270607.

Court Order dated Jan. 9, 2014, in Case No. 1:11-cv-03855-RLV in the U.S. District Court, Northern District of Georgia, Atlanta Division.

Special Master's Claims Construction Report and Recommendations dated Nov. 8, 2013, in Case No. 1:11-cv-03855-RLV in the U.S. District Court, Northern District of Georgia, Atlanta Division.

Defendant's Amended Invalidity Contentions Pursuant to Local Patent Rule 4.3, dated Apr. 9, 2014, in Case No. 1:11-cv-03855-RLV in the U.S. District Court, Northern District of Georgia, Atlanta Division

Expert Report of D. B.E. Springett Regarding Invalidity of U.S. Patent No. 7,647,012, dated May 12, 2014, in Case No. 1:11-cv-03855-RLV in the U.S. District Court, Northern District of Georgia, Atlanta Division.

Brazilian Office Action dated Sep. 9, 2014, in related Brazilian Patent Application No. P10216075-7 (with English translation.

Brazilian Office Action dated Sep. 5, 2014, in related Brazilian Patent Application No. P10200483-6 (with English translation.

Brazilian Office Action dated Sep. 9, 2014, in related Brazilian Patent Application No. P10216078-1 (with English translation.

Brazilian Office Action dated Sep. 9, 2014, in related Brazilian Patent Application No. P10216077-3 (with English translation.

Brazilian Office Action dated Sep. 9, 2014, in related Brazilian Patent Application No. P10216076-5 (with English translation.

Brazilian Office Action dated Sep. 9, 2014, in related Brazilian Patent Application No. P10216074-9 (with English translation.

* cited by examiner



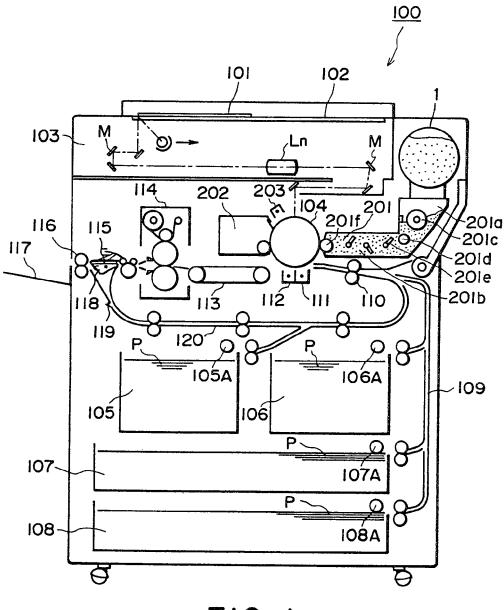


FIG. I

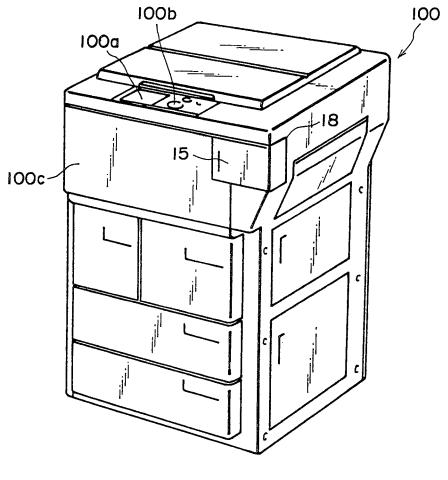


FIG. 2

DOCKET

Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.

