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# United States Patent [19]

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**Kato et al.**

[45] Date of Patent: **Sep. 12, 2000**

## [54] IMAGE FORMING APPARATUS AND TONER REPLENISHING DEVICE THEREFOR

### FOREIGN PATENT DOCUMENTS

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[73] Assignee: **Ricoh Company, Ltd.**, Tokyo, Japan

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[21] Appl. No.: **09/006,006**

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[22] Filed: **Jan. 12, 1998**

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### [30] Foreign Application Priority Data

Xerox Disclosure Journal, vol. 20, No. 3, 1995, pp. 237 to 240.

Jan. 13, 1997	[JP]	Japan .....	9-003839
Feb. 7, 1997	[JP]	Japan .....	9-024996
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[51] Int. Cl.<sup>7</sup> ..... **G03G 15/08**

### [57] ABSTRACT

[52] U.S. Cl. .... **399/27; 399/30; 399/258; 399/259**

An electrophotographic image forming apparatus including a developing unit operable with a one- or two-ingredient type developer and a device for replenishing toner to the developing unit included in the apparatus are disclosed. A plurality of toner bottles are accommodated in the toner replenishing device, so that the toner is replenished from one toner bottle to the developing unit. A rotating mechanism causes all the toner bottles to rotate during toner replenishment. A device is provided for determining the frequency of use of the individual toner bottle. The toner discharged from each toner bottle is fed to a toner transport portion via a respective passageway.

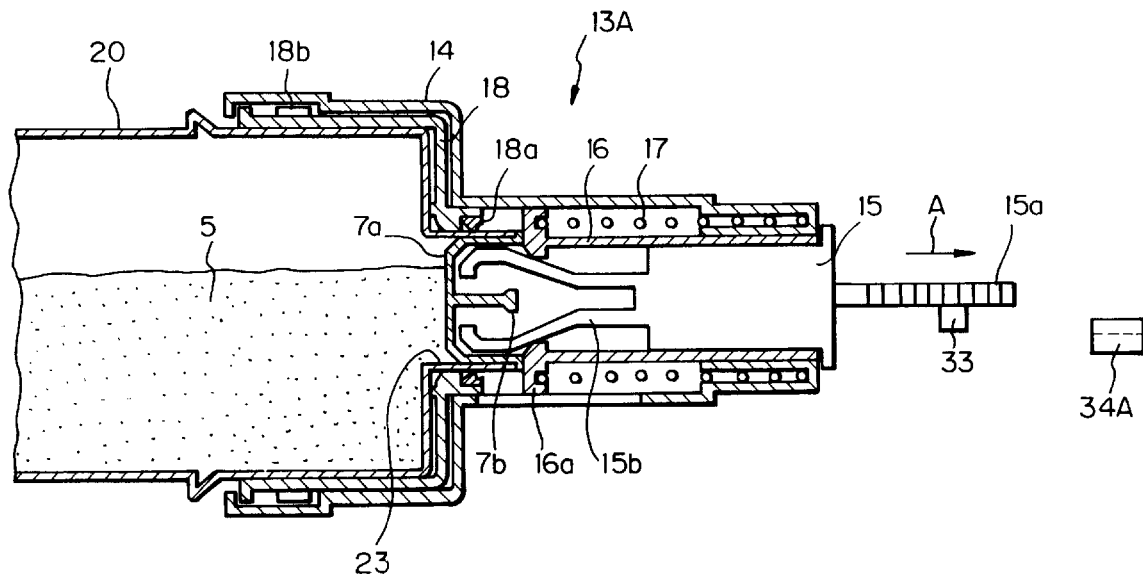
[58] Field of Search ..... 399/27, 28, 29, 399/30, 24, 25, 258, 259, 260, 261, 262, 263

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**40 Claims, 28 Drawing Sheets**



GPI EXHIBIT 1008  
GENERAL PLASTIC v. CANON  
IPR2016-01360

Fig. 1 PRIOR ART

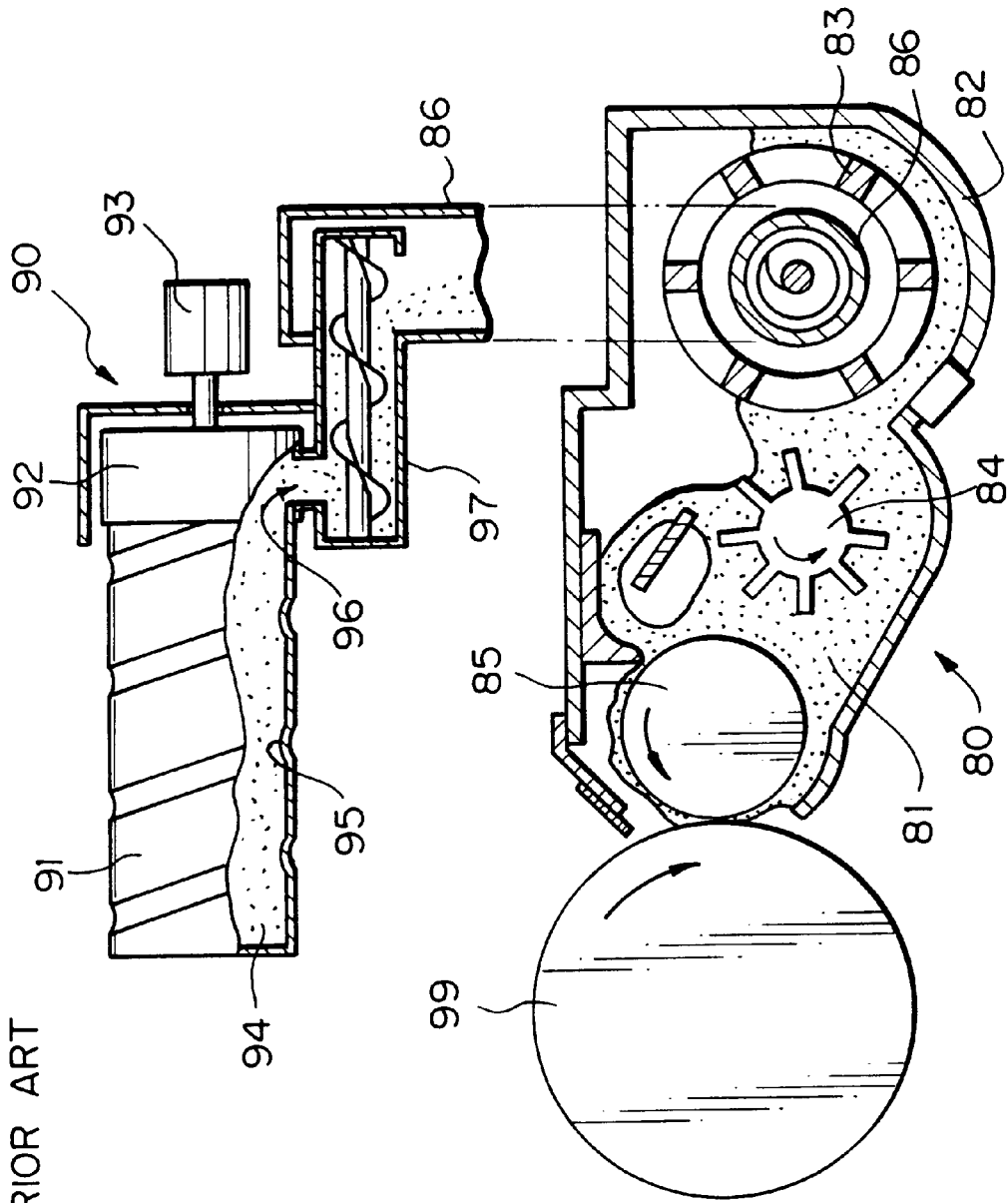


Fig. 2

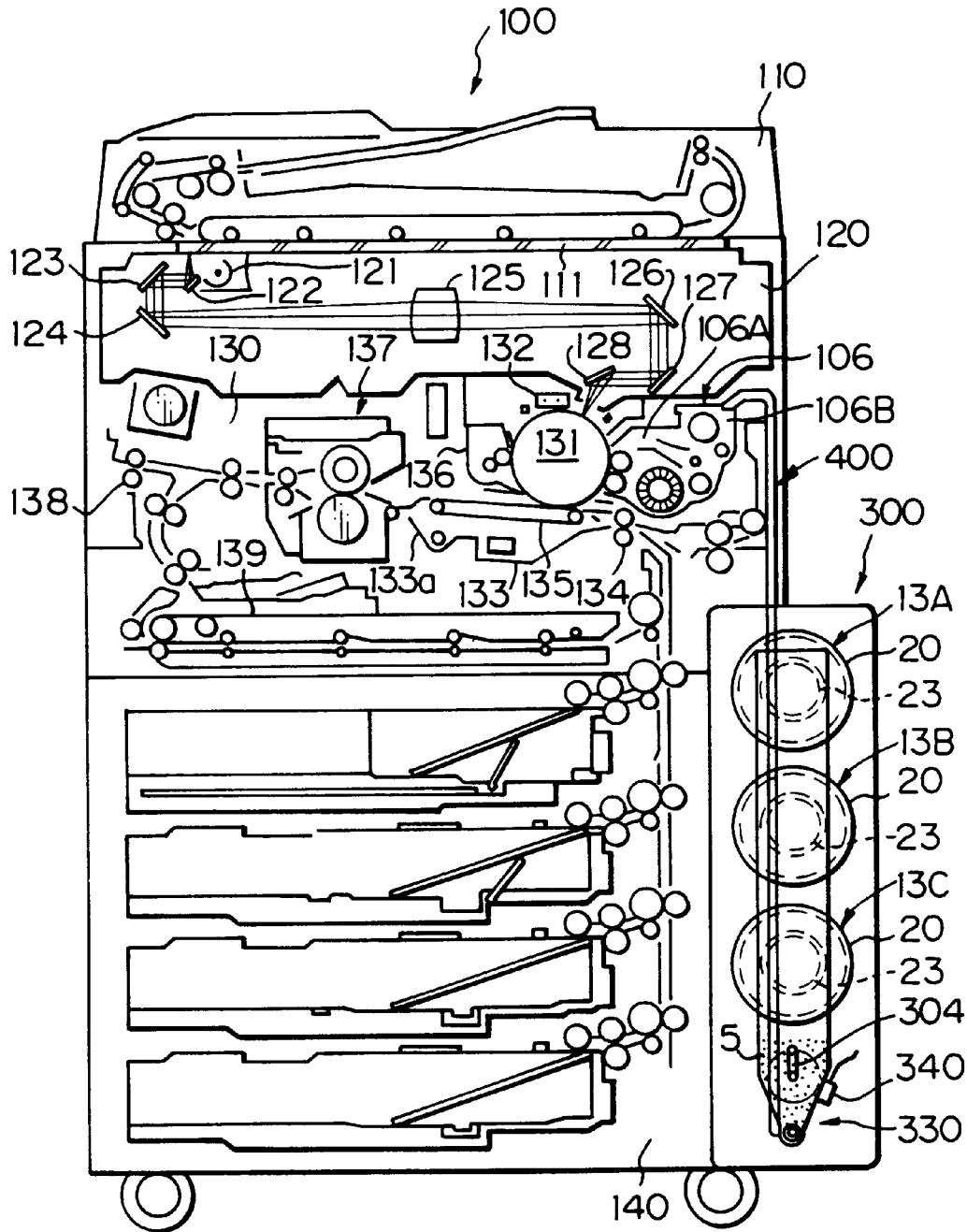


Fig. 3A-1

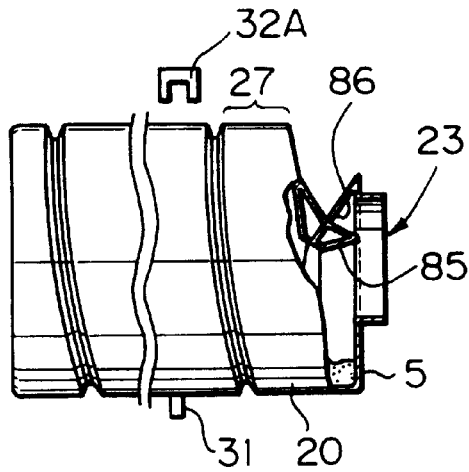


Fig. 3A-2

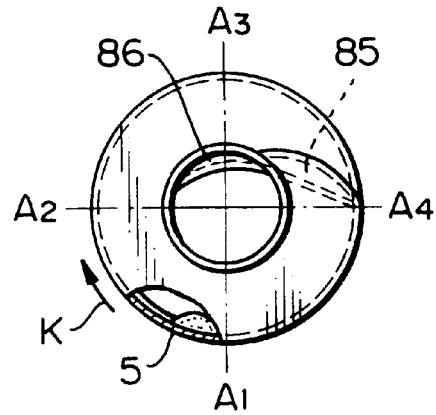


Fig. 3B-1

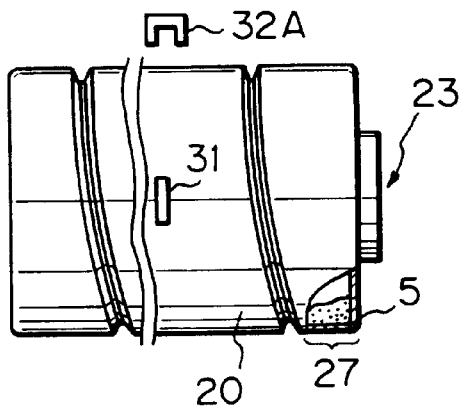


Fig. 3B-2

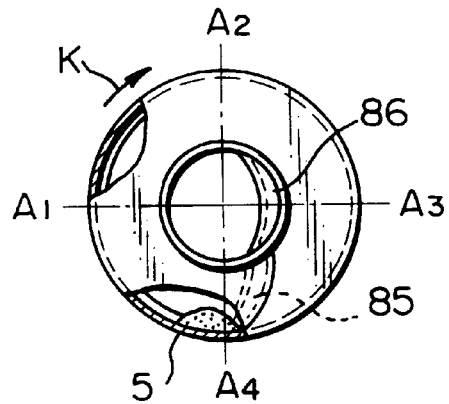


Fig. 3C-1

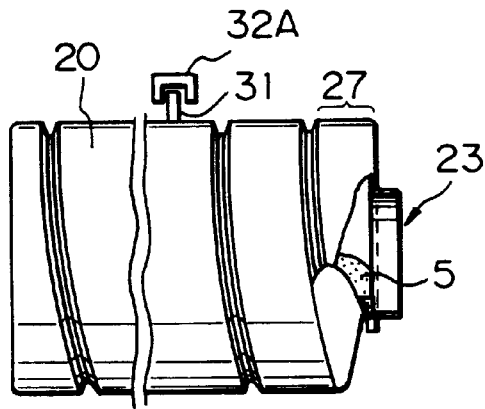


Fig. 3C-2

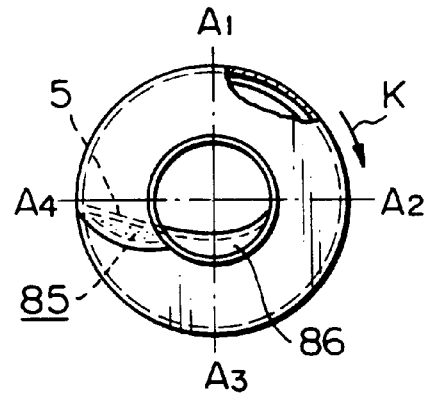


Fig. 3D-1

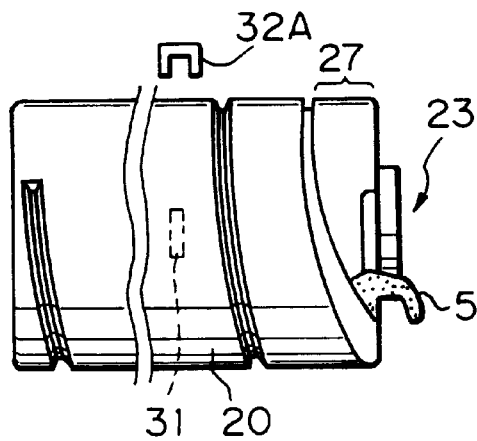
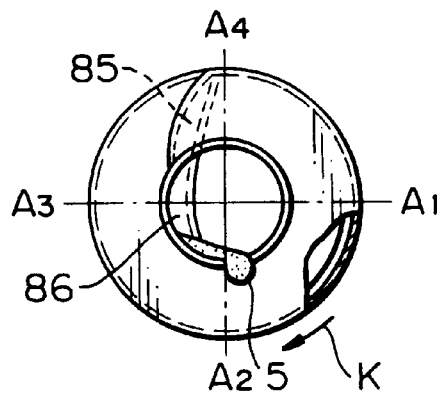


Fig. 3D-2



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