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(71) Applicant and

(72) Inventor: **KIM, Kwang, Sik** [KR/KR]; 382-2, Jangpa-Ri,
Papyoung-Myoun, Paju-City, Kyounggi-Do 413-881 (KR).

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): **LEE, Jae-Young**
[KR/KR]; 406-1104, Kangsunmaul Apt., Juyoup 1-dong,
Ilsan-gu, Koyang-city, Kyounggi-do 411-744 (KR).

(74) Agent: **YOON, Eui, Sang**; 2F, S & M Business Sup-
port Center, 1508-1, Kakyung-Dong, Heungdeok-Gu,
Cheongju-City, Chungcheongbuk-Do 361-802 (KR).

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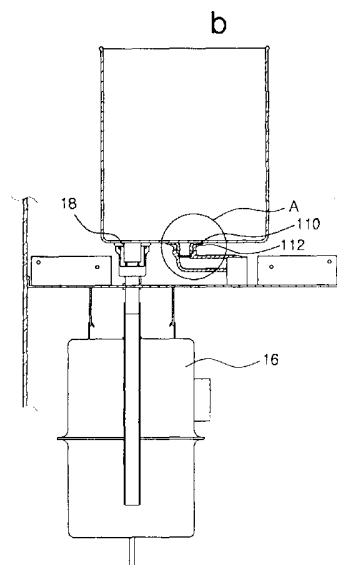
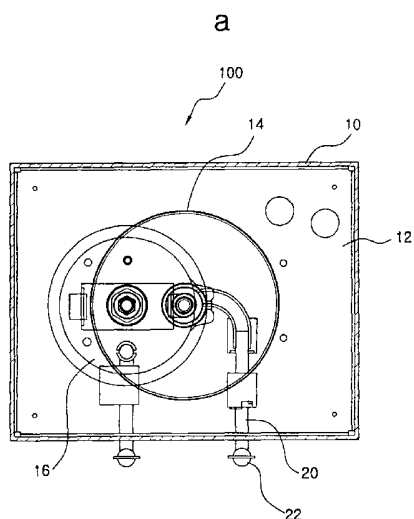
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(54) Title: AUXILIARY COLD WATER SUPPLY PIPE UNIT FOR HOT AND COLD WATER DISPENSERS



(57) Abstract: Disclosed herein is an auxiliary cold water supply pipe unit. The auxiliary cold water supply pipe unit includes a cold water supply port (110), an auxiliary cold water supply pipe (120), and a holding bushing (140). The cold water supply port (110) is formed on the bottom of a cold water tank (14) in such a way as to be downwardly tapered. In this case, a ring-shaped flange (112) is integrally formed at the lower end of the cold water supply port. The auxiliary cold water supply pipe (120) is fitted into the cold water supply port, and consists of a hollow head part (122), and a connection pipe part (130) integrated with the head part and connected to a main cold water supply pipe (20). The holding bushing (14) is formed in such a way as to be hollow for holding the head part in the cold water supply port.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

AUXILIARY COLD WATER SUPPLY PIPE UNIT FOR HOT AND COLD
WATER DISPENSERS

Technical Field

The present invention relates generally to hot and cold water dispensers, and more particularly, to an auxiliary cold water supply pipe unit for hot and cold water dispensers, which has an auxiliary water supply pipe designed such that its one end is fitted into the bottom of a cold water tank and its other end is connected to a main cold water supply pipe connected to a cold water supply valve, and also has a holding bushing for holding the auxiliary water supply pipe connected to the cold water tank, thus easily connecting the cold water tank to the main cold water supply pipe provided with the cold water supply valve in a simple fitting manner without a weld, therefore reducing manufacturing time as well as maximizing its productivity.

Background Art

Generally, a hot and cold water dispenser of a cylindrical shape consists of a water bottle seated on a casing. The casing is partitioned into two compartments by a center plate. In this case, a cold water tank is positioned above the center plate whereas a hot water tank is positioned under the center plate. A cold water supply pipe is, at its one end, welded to the bottom of the cold water tank, and used for discharging cold water from the cold water tank. Meanwhile, the other end of the cold water supply pipe is connected to the cold water supply valve which is exposed to the outside of the casing.

In order to connect the cold water supply pipe to the bottom of the cold water tank, the cold water supply pipe must be bent at a predetermined angle and welded by a skilled worker. So, the conventional cold water supply pipe has a problem that it takes a long time to connect the cold water supply pipe to the bottom of the cold water tank, thus being poor in terms of work efficiency. The

conventional cold water supply pipe has another problem that water may be leaked from welded portions. In addition, the conventional cold water supply pipe has a further problem that its manufacturing cost is increased, because the conventional pipe is coupled to the cold water tank through a screw-type coupling, and
5 additional tools are required in order to form internal and external threads on the pipe and the tank.

Disclosure of the Invention

Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and an object of the present invention is
10 to provide an auxiliary cold water supply pipe unit for hot and cold water dispensers, which has an auxiliary water supply pipe designed such that its one end is fitted into the bottom of a cold water tank and its other end is connected to a main cold water supply pipe connected to a cold water supply valve, and also has a holding bushing for holding the auxiliary water supply pipe connected to the cold
15 water tank, thus easily connecting the cold water tank to the main cold water supply pipe provided with the cold water supply valve in a simple fitting manner without a weld, therefore reducing manufacturing time as well as maximizing its productivity.

In order to accomplish the above object, the present invention provides an
20 auxiliary cold water supply pipe unit for hot and cold water dispensers, each of the water dispensers having a casing partitioned into upper and lower compartments by a center plate to receive cold and hot water tanks, respectively, the cold water tank provided therein with a partition plate for separating water of room temperature from cold water, the cold water tank also provided at its bottom with a
25 room temperature water guide hole for guiding water of room temperature from the cold water tank into the hot water tank, and with a cold water supply port connected to a main cold water supply pipe for discharging cold water from the cold water tank to the outside of the casing, wherein the auxiliary cold water supply pipe unit comprises: the cold water supply port formed on the bottom of the

cold water tank in such a way as to be downwardly tapered while inclining at a predetermined angle, with a ring-shaped flange integrally formed at a lower end of the cold water supply port; an auxiliary cold water supply pipe fitted into the cold water supply port, and consisting of a hollow head part, and a connection pipe part
5 integrated with the head part and connected to the main cold water supply pipe; and a holding bushing formed in such a way as to be hollow for holding the head part in the cold water supply port.

As described above, the present invention is directed to an auxiliary cold water supply pipe unit for hot and cold water dispensers, which has an auxiliary
10 water supply pipe designed such that its one end is fitted into the bottom of a cold water tank and its other end is connected to a main cold water supply pipe connected to a cold water supply valve, and also has a holding bushing for holding the auxiliary water supply pipe connected to the cold water tank, thus easily
connecting the cold water tank to the main cold water supply pipe provided with
15 the cold water supply valve in a simple fitting manner without a weld, therefore reducing manufacturing time as well as maximizing its productivity.

Brief Description of the Drawings

The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description
20 taken in conjunction with the accompanying drawings, in which:

Fig. 1a is a plan view showing a hot and cold water dispenser provided with an auxiliary cold water supply pipe unit according to this invention;

Fig. 1b is a front view of the hot and cold water dispenser provided with the auxiliary cold water supply pipe unit of this invention; and

25 Fig. 2 is an enlarged sectional view of the part "A" encircled in Fig. 1b.

Best Mode for Carrying Out the Invention

Reference should now be made to the drawings, in which the same

reference numerals are used throughout the different drawings to designate the same or similar components.

Fig. 1a is a plan view showing a hot and cold water dispenser provided with an auxiliary cold water supply pipe unit according to this invention. Fig. 1b is a front view of the hot and cold water dispenser provided with the auxiliary cold water supply pipe unit of this invention. Fig. 2 is an enlarged sectional view of the part "A" encircled in Fig. 1b.

Referring to Figs. 1a and 1b, a hot and cold water dispenser 100 of this invention has a casing 10 which is partitioned into upper and lower compartments by a center plate 12 to receive cold and hot water tanks 14 and 16, respectively. The cold water tank 14 is provided therein with a partition plate (not shown) for separating water of room temperature from cold water. The cold water tank 14 is also provided at its bottom with a room temperature water guide hole 18 for guiding water of room temperature from the cold water tank 14 into the hot water tank 16. In addition, the cold water tank 14 has a cold water supply port 110 which is connected to a main cold water supply pipe 20 for discharging cold water from the cold water tank 14 to the outside of the casing 10.

The cold water supply port 110 is formed on the bottom of the cold water tank 14 in such a way as to be downwardly tapered while inclining at a predetermined angle. A ring-shaped flange 112 is integrally formed at the lower end of the cold water supply port 110. To the cold water supply port 110 is mounted an auxiliary cold water supply pipe 120 and a holding bushing 140.

The auxiliary cold water supply pipe 120 (see, Fig. 2) is made of silicon to have a predetermined flexibility. This auxiliary cold water supply pipe 120 consists of a hollow head part 122 fitted into the cold water supply port 110, and a connection pipe part 130 connected to the main cold water supply pipe 20.

The auxiliary cold water supply pipe 120 also has an annular first wing 124, a cylindrical first neck 126, and a locking ring 128. The first wing 124 is inclined at an angle equal to the cold water supply port 110 such that the outer circumferential surface of the head part 122 of the auxiliary cold water supply pipe 120 is in close contact with the inner circumferential surface of the cold water

supply port 110. The first neck 126 is integrally formed under the first wing 124 to be in close contact with the inner surface of the flange 112 of the cold water supply port 110. The locking ring 128 is integrally formed around the inner circumferential surface of the first neck 126 at a position on the lower portion of the first neck 126. Preferably, the locking ring 128 has a ring shape, and is formed to surround the inner circumferential surface of the first neck 126. The connection pipe part 130 downwardly extends from the head part 122 of the auxiliary cold water supply pipe 120 while being formed in such a way as to be integrated with the head part 122. The connection pipe part 130 is formed in such a way as to be perpendicularly bent from the first neck 126 while extending toward the front surface of the casing 10. The holding bushing 140 is fitted into the head part 122 of the auxiliary cold water supply pipe 120.

The holding bushing 140 is hollow in the same manner as that of the head part 122 of the auxiliary cold water supply pipe 120. The holding bushing 140 is provided with an annular second wing 142 which is inclined at its outer circumferential surface at the same angle as the cold water supply port 110 such that the inclined outer circumferential surface of the holding bushing 140 is smoothly fitted into the cold water supply port 110. In this case, the second wing 142 covers the upper surface of the first wing 124 while its outer circumferential surface is in close contact with the cold water supply port 110. A cylindrical second neck 144 is integrally formed on the second wing 142 to be fitted into the first neck 126. Further, a ring-shaped locking groove 146 is formed around the outer circumferential surface of the second neck 144 for engaging with the locking ring 128.

The assembly of the auxiliary cold water supply pipe unit for hot and cold water dispensers will be briefly described in the following.

First, the head part 122 of the auxiliary cold water supply pipe 120 is fitted into the cold water supply port 110. At this time, the first wing 124 of the head part 122 is in close contact with the inner circumferential surface of the cold water supply port 110. A part of the first neck 126 is in close contact with the lower edge of the flange 112. In this way, the head part 122 of the auxiliary cold

water supply pipe 120 is fitted into the cold water supply port 110 and the connection pipe part 130 of the auxiliary water supply pipe 120 is connected to the main cold water supply pipe 20 which is connected to the cold water supply valve 22 (see, Fig. 1a). As such, when the assembly of the auxiliary water supply pipe 120 is completed, the head part 122 is held in the cold water supply port 110 by means of the holding bushing 140. At this time, the second wing 142 of the holding bushing 140 covers the upper surface of the first wing 124 while the outer circumferential surface of the second wing 142 is in close contact with the inner circumferential surface of the cold water supply port 110. The second neck 144 is inserted into the first neck 126 such that the locking ring 128 of the first neck 126 engages with the ring-shaped locking groove 146 of the second neck 144.

Industrial Applicability

As described above, the present invention provides an auxiliary cold water supply pipe unit, which has an auxiliary cold water supply pipe designed such that one end of the supply pipe is fitted into a cold water supply port of a cold water tank and the other end of the supply pipe is connected to a main cold water supply pipe, and also has a holding bushing for holding a head part of the auxiliary water supply pipe fitted into the cold water tank, thus easily connecting the auxiliary cold water supply pipe unit to the cold water tank, therefore reducing manufacturing time as well as preventing the leakage of cold water frequently occurring in a conventional hot and cold water dispenser assembled by a welding method.

Further, the present invention provides an auxiliary cold water supply pipe unit, which is easily disconnected from the cold water tank, thus easily cleaning the cold water tank.

Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

1. An auxiliary cold water supply pipe unit for hot and cold water dispensers, each of said water dispensers having a casing partitioned into upper and lower compartments by a center plate to receive cold and hot water tanks, respectively, said cold water tank provided therein with a partition plate for separating water of room temperature from cold water, said cold water tank also provided at a bottom thereof with a room temperature water guide hole for guiding water of room temperature from the cold water tank into the hot water tank, and with a cold water supply port connected to a main cold water supply pipe for discharging cold water from the cold water tank to the outside of the casing, wherein said auxiliary cold water supply pipe unit comprises:

the cold water supply port formed on the bottom of the cold water tank in such a way as to be downwardly tapered while inclining at a predetermined angle, with a ring-shaped flange integrally formed at a lower end of said cold water supply port;

an auxiliary cold water supply pipe fitted into the cold water supply port, and consisting of:

a hollow head part; and
a connection pipe part integrated with the head part and connected to the main cold water supply pipe; and

a holding bushing formed in such a way as to be hollow for holding the head part in the cold water supply port.

2. The auxiliary cold water supply pipe unit according to claim 1, wherein said auxiliary cold water supply pipe further comprises:

an annular first wing inclined at an angle equal to the cold water supply port such that an outer circumferential surface of the head part of the auxiliary cold water supply pipe is in close contact with an inner circumferential surface of the cold water supply port;

a cylindrical first neck integrally formed under the first wing to be in close

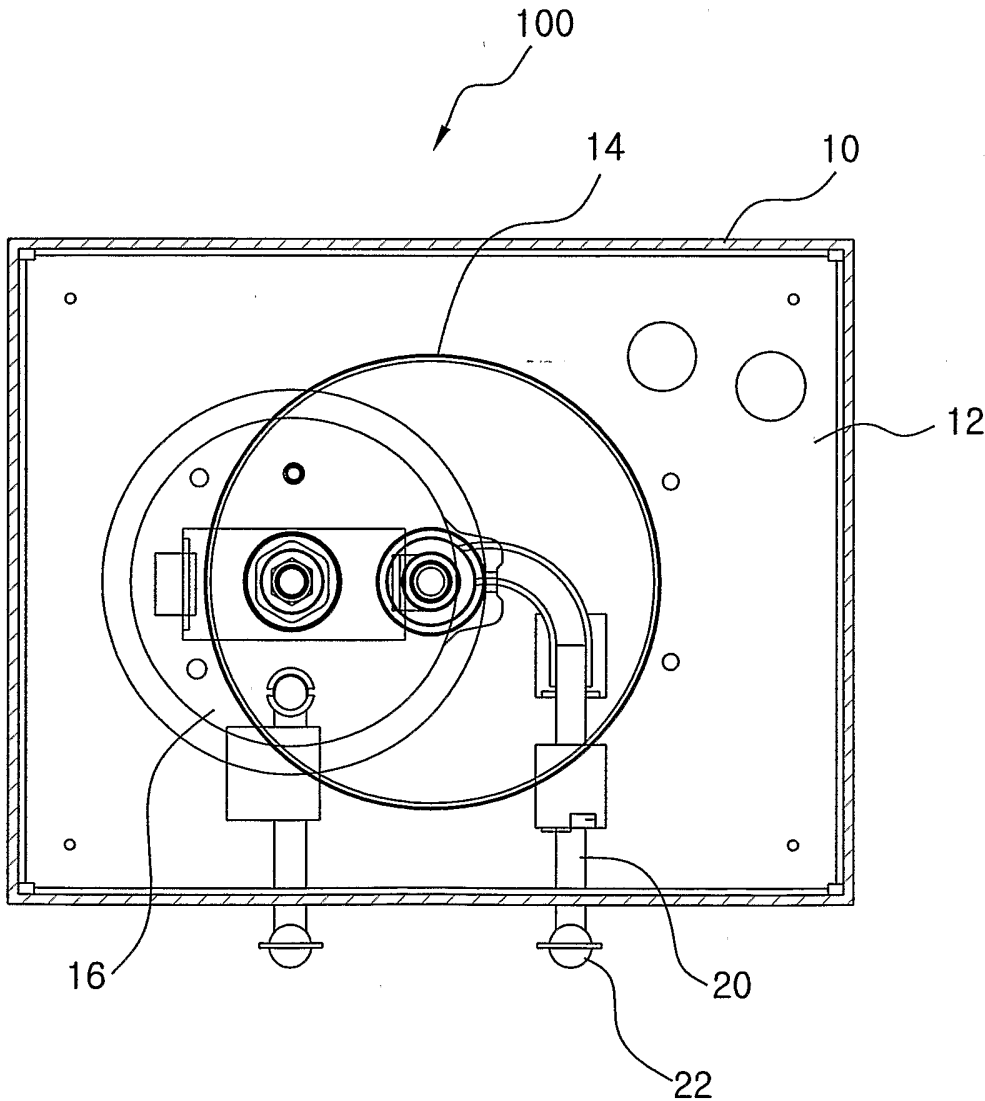
contact with an inner surface of the flange of the cold water supply port; and

a locking ring formed around an inner circumferential surface of the first neck at a position on the lower portion of the first neck.

3. The auxiliary cold water supply pipe unit according to claim 2, wherein
5 said connection pipe part is formed in such a way as to be perpendicularly bent from the first neck while extending toward a front surface of the casing.

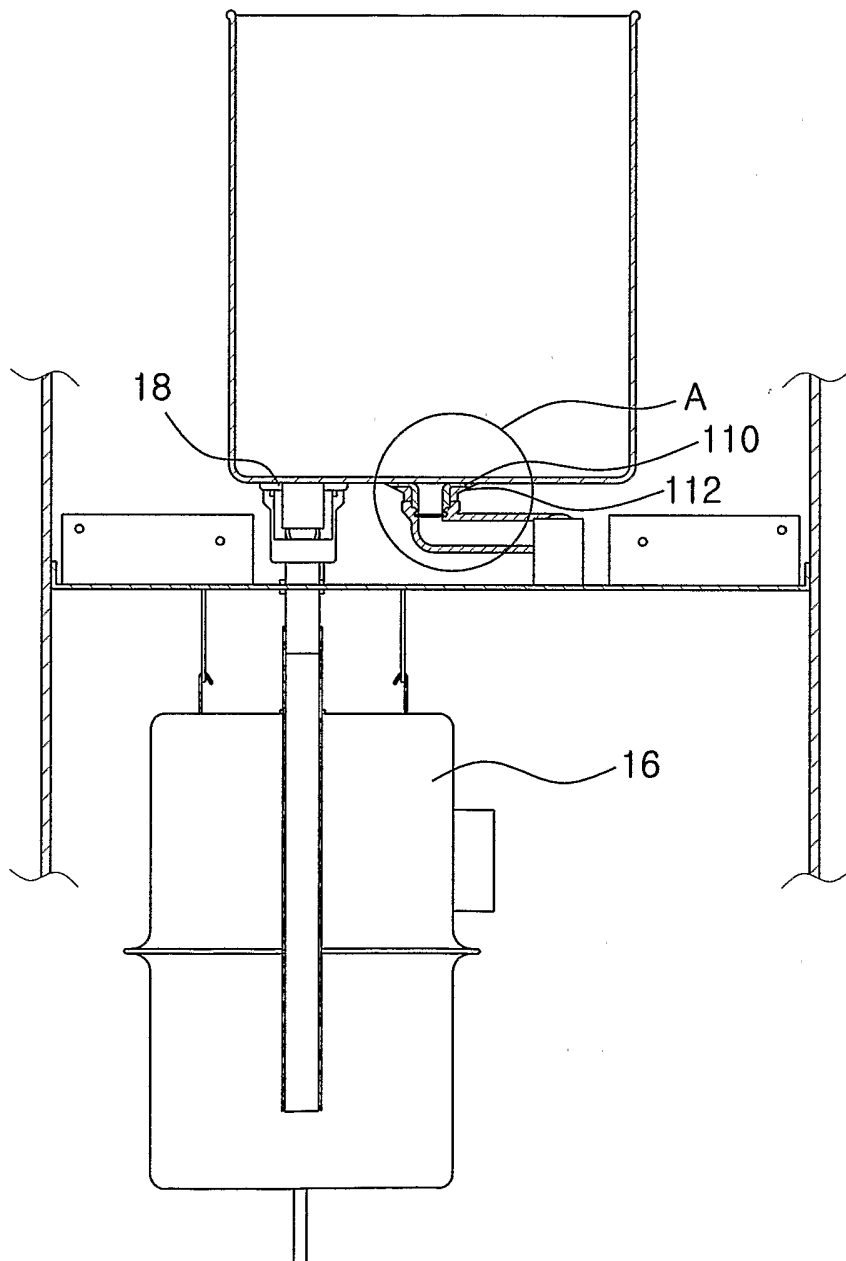
4. The auxiliary cold water supply pipe unit according to claim 2, wherein
said holding bushing is provided with an annular second wing inclined at an outer
circumferential surface thereof at the same angle as the cold water supply port and
10 covering an upper surface of the first wing such that the inclined outer circumferential surface of the holding bushing is smoothly fitted into the cold water supply port, and a cylindrical second neck is integrally formed on a lower portion of the second wing to be fitted into the first neck, and a ring-shaped locking groove is formed around an outer circumferential surface of the second
15 neck for engaging with the locking ring.

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Fig.1 a

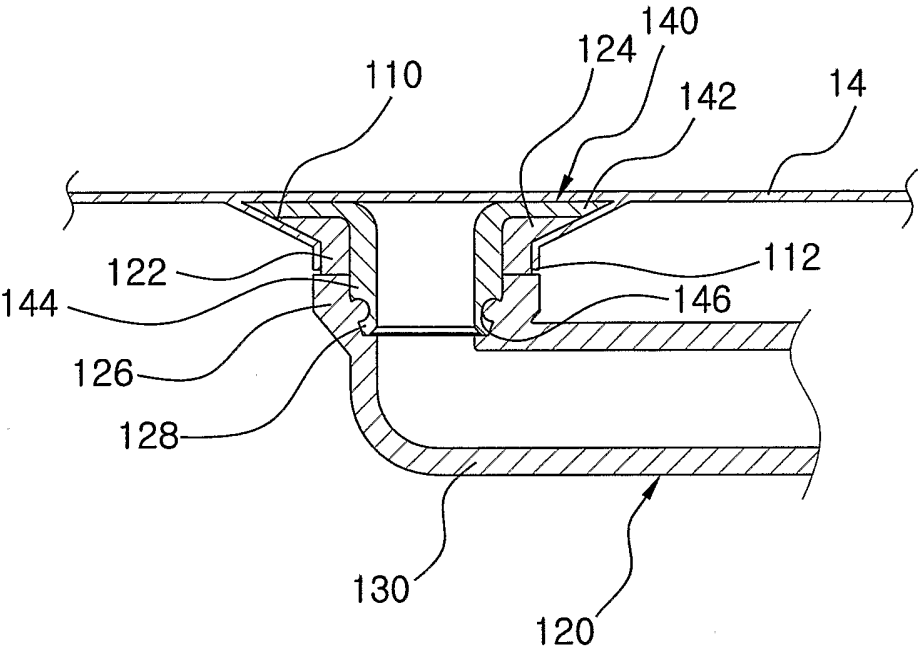


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Fig.1b



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Fig.2



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR02/00772

A. CLASSIFICATION OF SUBJECT MATTER**IPC7 F25D 11/00**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 F25D 11/00, 11/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KOREAN PATENT AND APPLICATIONS FOR INVENTIONS SINCE 1975

KOREAN UTILITY MODELS AND APPLICATIONS FOR UTILITY MODELS SINCE 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 20-142635 Y(SAMSUNG ELECTRONICS CO. LTD) 1 JUNE 1999 CLAIM 1 - 5, FIGURE	1 - 4
A	KR 20-202513 Y(KIM, HYN-TAE) 15 NOVEMBER 2000 CLAIM 1 - 2, FIGURE	1 - 4
A	JP 5-71844 A(TOSHIBA CORP.) 23 MARCH 1993 CLAIM 1, FIGURE	1 - 4
A	JP 6-26747 A(TOSHIBA CORP.) 4 FEBRUARY 1994 CLAIM 1 - 2, FIGURE	1 - 4

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

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Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

LEE, Jung Cheol

Telephone No. 82-42-481-5966

