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(54) Title: PORTABLE STIRRING DEVICE

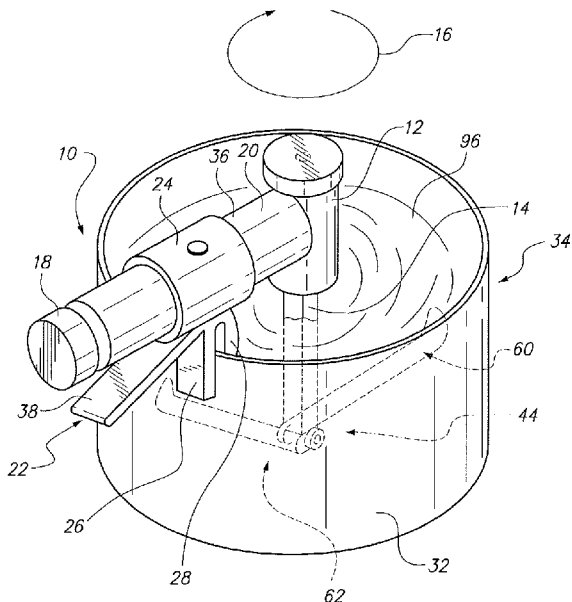


FIG. 1

(57) Abstract: A stirring apparatus for agitating fluids in a container utilizing a powered rotor held in a housing. The rotor includes an elongated aperture that loosely engages a stirring elements that is permitted to swing outwardly upon rotation and to drop downwardly to the base of the container.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/40918

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A21C 1/00; A47J 43/04; B01F 9/00 (2014.01)
 CPC - A21C 1/1415; A47J 43/1068, 43/1012

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)

IPC(8) Classification(s): A21C 1/00; A47J 43/04; B01F 9/00 (2014.01)

CPC Classification(s): A21C 1/1415; A47J 43/1068, 43/1012; USPC Classification(s): 99/348; 366/ 129, 343

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

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

MicroPatent (US-G, US-A, EP-A, EP-B, WO, JP-bib, DE-C,B, DE-A, DE-T, DE-U, GB-A, FR-A); Google; Google/Scholar; ProQuest;
 Keywords: mixer*, beater*, portable*, hand*, power*, motor*, actuator*, driver*, telescop*, tele-scop*, post*, column*, shaft*, mix*, stir*,
 agitat*, blend*, rotor*, shaft*, ear*, flap*, arm*, wing*, fin*

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,575,255 A (KAFKA B) March 11, 1986; figures 1-3; column 4, lines 6-11; column 4, lines 27-31; column 4, lines 52-55; column 5, lines 20-38; column 5, lines 49-50; column 5, lines 58-59; column 6, lines 17-30	1-6
Y		7-9
Y	US 5,613,425 A (KRZARNIC M) March 25, 1997; figures 1-3; column 4, lines 30-33; column 2, lines 65-67; column 4, lines 55-57; column 4, line 65 - column 5, line 4	7-9
A	US 2011/0116341 A1 (OBERSTEINER H) May 19, 2011; entire document	1-9
A	US 5,765,947 A (DUBROY GP) June 16, 1998; entire document	1-9
A	US 5,112,135 A (RUPP CA) May 12, 1992; entire document	1-9
A	US 4,349,758 A (GRANT JR EJ et al.) September 14, 1982; entire document	1-9
A	US 3,660,741 A (WALTER J) May 2, 1972; entire document	1-9
A	US 3,604,114 A (SWANKE RL et al.) September 14, 1971; entire document	1-9
A	US 2,209,287 A (SIMPSON WL) July 23, 1940; entire document	1-9

Further documents are listed in the continuation of Box C.

- | | |
|---|--|
| * Special categories of cited documents: | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
| "A" document defining the general state of the art which is not considered to be of particular relevance | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "E" earlier application or patent but published on or after the international filing date | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "&" document member of the same patent family |
| "O" document referring to an oral disclosure, use, exhibition or other means | |
| "P" document published prior to the international filing date but later than the priority date claimed | |

Date of the actual completion of the international search

17 November 2014 (17.11.2014)

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/40918

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

- 1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

- 2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

- 3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

-***-Please See Supplemental Page-***-

- 1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
- 2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
- 3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
- 4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-9

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US14/40918

****-Continued from Box No. III: Observations where unity of invention is lacking-****

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I: claims 1-9 are directed toward a stirring mechanism comprising a stirring element including a pair of ears.

Group II: claims 10-17 are directed toward a stirring device comprising an elongated aperture sized to allow movement of the stirring element under the influence of gravity.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons.

The special technical features of Group I include said stirring element including a shaft, said shaft having a first portion said first portion of said shaft including a pair of ears extending outwardly from said shaft, said second portion said shaft including a terminus for contacting fluid in the container; said rotor further including a pair of cavities positioned adjacent said aperture, said pair of cavities, each having a wall portion, said pair of cavities being sized to frictionally engage and permit rotation of said pair of ears extending from said shaft of said stirring element (which is not present in Group II).

The special technical features of Group II include said elongated aperture further being sized to allow movement of the stirring element along said dimension of elongation and through said aperture under the influence of gravity; and e. a rotational linkage for transferring the movement of said rotating output shaft of said motor to said rotor and the stirring element encompassed by said aperture (which is not present in Group I).

The common technical features of Groups I-II include : a. a motor including a rotating output shaft; b. a source of power, said source of power being connected to said motor to activate said rotating shaft; c. a housing supporting said motor said housing including an end portion; d. a stirring element, e. a rotor rotationally mounted at said end portion of said housing, said rotor further including an aperture having a dimension of elongation therethrough to allow loose encompassing of at least a portion of said stirring element.

These common technical features are disclosed by US 4,575,255 (KAFKA): a. a motor (50; figure 2) including a rotating output shaft (52); b. a source of power (36, 38, collectively), said source of power being connected to said motor to activate said rotating shaft (motor 50 rotates shaft 52 at a voltage provided from batteries 36, 38; column 5, lines 12-20); c. a housing (30, 32, collectively) supporting said motor (50) said housing including an end portion (62); d. a stirring element (14; figure 3), e. a rotor (64) rotationally mounted (motor 50 drives cylinder 64 (rotor); column 5, lines 21-31) at said end portion (62) of said housing (30, 32, collectively), said rotor further including an aperture (aperture; column 4, line 53-55) having a dimension of elongation therethrough (various attachment can be inserted into the aperture, i.e., the aperture having a dimension of elongation therethrough; column 4, lines 52-55) to allow loose encompassing of at least a portion of said stirring element (unit 14 (stirring element) is detachably accommodated (loose encompassing) within cylinder 64 (rotor); figure 2; column 4, lines 25-30),

Because the common technical features are disclosed by Kafka, the inventions are not so linked as to form a single general inventive concept. Therefore, Groups I-II lack unity.