Feb. 5, 1952 R. F. LAURENCE 2,584,887

DOMESTIC MIXING APPARATUS

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Fig. 1.

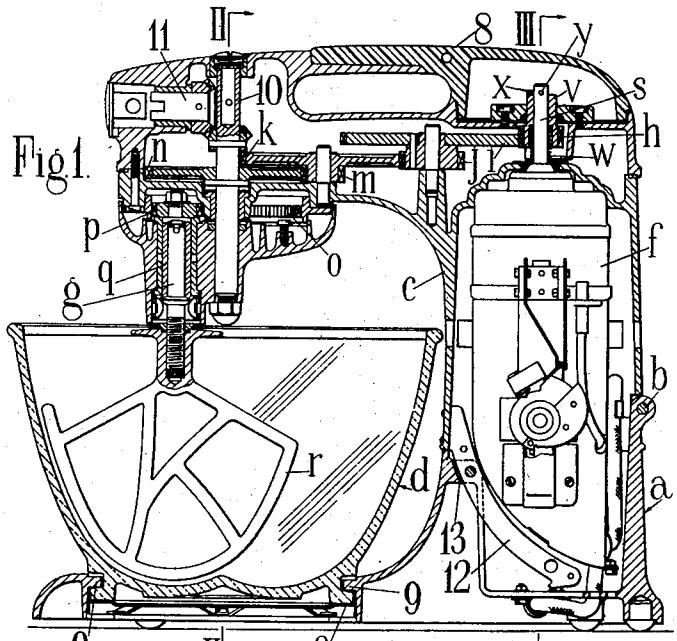
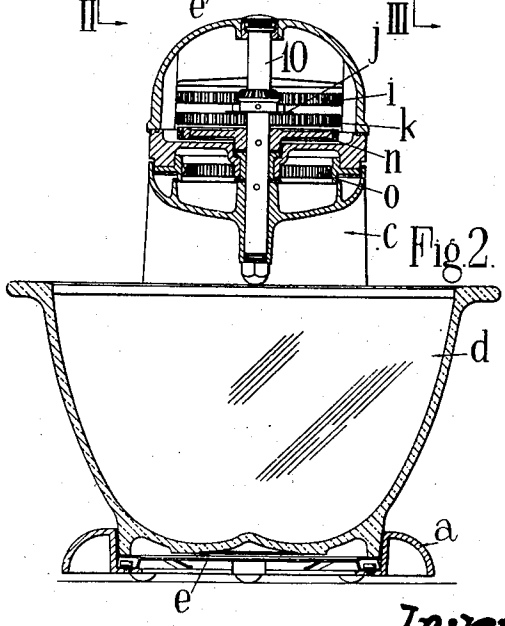


Fig. 2.



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DOMESTIC MIXING APPARATUS

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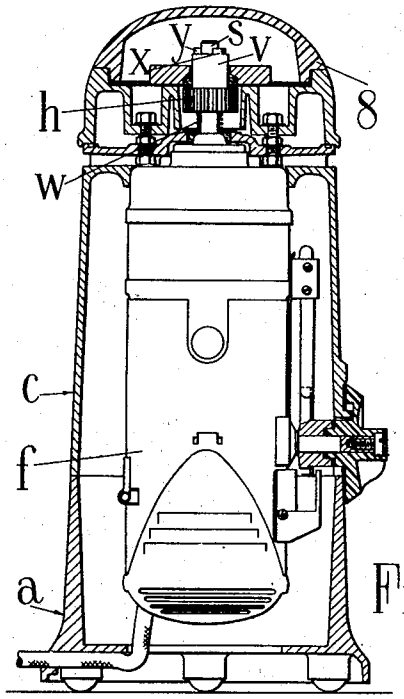


Fig.3

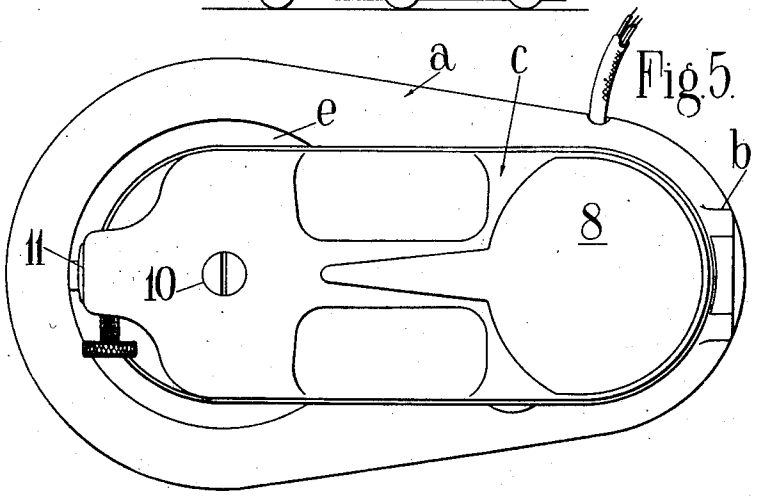


Fig.5

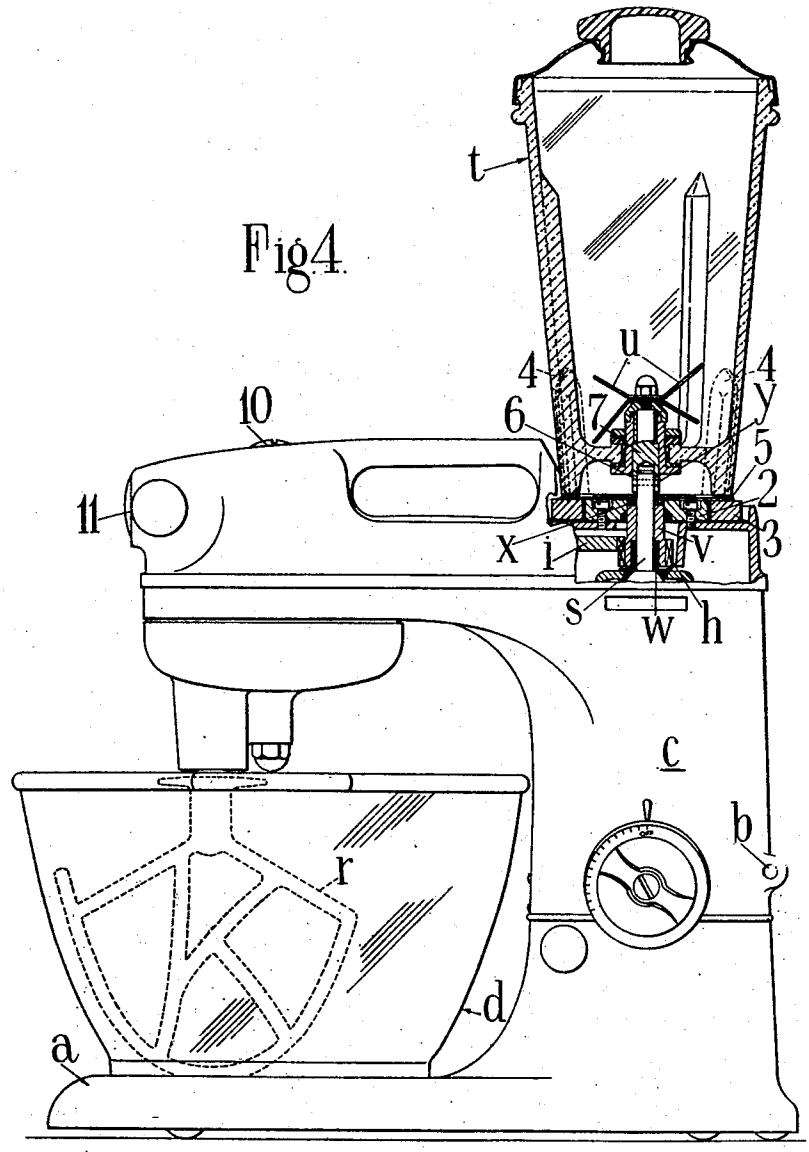
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DOMESTIC MIXING APPARATUS

Filed May 16, 1950 3 Sheets-Sheet 3

Fig.4.



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2,584,887

UNITED STATES PATENT OFFICE

2,584,887

DOMESTIC MIXING APPARATUS

Roger Frederic Laurence, Guildford, England, assignor to Kenwood Manufacturing Company Limited, Old Woking, Surrey, England

Application May 16, 1950, Serial No. 162,267
In Great Britain May 24, 1949

3 Claims. (Cl. 259—102)

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This invention relates to domestic mixing apparatus of the kind embodying a power driven beater adapted to operate within or to be raised above a mixing bowl associated with a base plate.

The invention has for its object to provide improved or simplified forms thereof in which the range of use is extended.

The invention consists in domestic mixing apparatus of the kind set forth embodying means for the ready attachment thereto or detachment therefrom of a beaker incorporating a blade or blades rotatable from the motor.

The invention also consists in domestic mixing apparatus as set forth in the preceding paragraph, wherein a driving connection to the blade or blades of the beaker is automatically effected as the beaker is attached to the mixing apparatus.

The invention also consists in domestic mixing apparatus substantially as hereinafter described with reference to the accompanying drawings.

Referring to the accompanying diagrammatic drawings:

Figure 1 is a part sectional side elevation of one convenient construction of apparatus embodying the present invention,

Figure 2 is a sectional view thereof on the line II—II,

Figure 3 is a vertical sectional view thereof on the line III—III of Figure 1,

Figure 4 is a part sectional elevational view with emulsifier beaker in operative position, and

Figure 5 is a plan view with bowl and emulsifier removed.

In carrying the invention into effect according to one convenient form illustrated by way of example in Figures 1–5, I provide a base casting *a* furnished with a hinge *b* about which is pivoted a beater head *c*, the pivot axis of the hinge being horizontal and at a level somewhat below the top of a mixing bowl *d* adapted to be fitted to a platform *e* forming part of the base plate casting *a*.

The beater head carries within it a normally vertical electric motor *f* and a beater spindle *g*, the axis of which is parallel to the motor axis. The beater spindle is driven through a train of reduction gearing *h i j k l m n* including a fixed ring *o* furnished with internal gear teeth, the internal teeth engaging a planetary pinion *p* on a sleeve *q* to which the beater spindle *g* is connected; the pinion in turn meshes with a sun pinion fixed in position. Rotation of the motor effects planetary rotation of a beater *r* attached to the beater spindle *g* within the bowl, the base of the bowl *d* being appropriately shaped to permit freedom of motion of the beater with slight clearance within the bowl.

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Included in the gearing train is a mechanical clutch device which is adapted to disconnect the drive from the motor shaft *s* to the pinion *h* when a beaker *t* (Figure 4) carrying a blade or blades *u* rotatable therein is applied in position on a beaker seat **2** on the beater head.

The pinion *h* is mounted on a sleeve *v* which is spring-urged upwards by a spring *w* into a position (Figure 1) in which a lug *x* on the sleeve engages a coupling pin *y* in the motor shaft *s*.

A fixed lug is provided having bayonet sockets (not shown) for the co-operation of bayonet members on a detachable encircling ring **3**, which latter embodies four upstanding fingers **4** for supporting the beaker *t* when placed in operative position (Figure 4).

When the ring **3** is fitted in postion (Figure 4) a disc **5** rigid therewith bears upon and depresses the sleeve *v* thereby disconnecting the drive between the motor shaft *s* and the sleeve *v*. When the beaker is placed in position the pin *y* engages a slot **6** in the spindle **7** carrying the vanes *u*.

A cover plate **8** is provided on the beater head to cover the beaker seat assembly when the beaker *t* is not in use.

Means (not shown) are provided for retaining the beater head *c* in elevated position when the beater has been lifted above the bowl and means are also provided for holding the beater head rigidly with the beater lowered into operative position.

The bowl is conveniently located on the platform by the provision of two or more notches and recesses in the base of the bowl adapted to co-operate with a corresponding member of radial fingers **9** furnished with surfaces of resilient material. By this means bayonet fixing of the bowl may be achieved.

The train of gearing conveniently incorporates a vertical spindle **10** furnished with means for attaching a juice extractor reamer thereto.

If desired also a spindle or spindles **11** may be provided in the gear train to permit driving connection to be made with apparatus external to the machine.

In order to steady the beater head and relieve stress on the hinge thereof, a lug **12** is provided on the beater head for engagement with a notch **13** in the base plate casting when the beater head is locked in operative position. Or the lug **12** and notch **13** may be reversely located.

I claim:

1. The combination with a domestic mixing apparatus of the type comprising a base member adapted to support a mixing bowl, a beater head extending upwardly from and overlying the

base member, a motor shaft mounted to extend vertically within the beater head, an electric motor for rotating the motor shaft, a mixer spindle mounted in and projecting downwardly from the beater head and having its lower end receivable within the mixing bowl, and a transmission gear train drivingly connecting the motor shaft with the mixer spindle; of a clutch for alternatively connecting and disconnecting the drive between the motor shaft and the mixer spindle, said clutch comprising a pinion axially slidable upon and rotatable with the motor shaft and forming part of said gear train, a beaker seat upon the beater head for supporting a beaker mixing mechanism in upright position, said motor shaft having its upper end projecting through and above the beaker seat, coupling means upon the projecting end of the motor shaft adapted to afford coupling engagement with a beaker mixing mechanism, spring means slidably urging said pinion into driving engagement with a gear of said transmission train and depressible means adjacent the beaker seat and operatively connected to the pinion for sliding the pinion in opposition to the spring means, whereby the operation of placing a beaker mixing mechanism upon the beaker seat in operative engagement with the coupling means on the motor shaft moves the pinion out of driving engagement with said gear train.

2. The combination as set forth in claim 1 wherein the depressible means comprises a sleeve slidable upon the motor shaft unitarily with the pinion.

3. The combination as set forth in claim 1 wherein the depressible means comprises a sleeve slidable upon the motor shaft unitarily with the pinion and an abutment upon an end of the sleeve engageable with the coupling means upon the projecting end of the motor shaft when the pinion is in driving position with respect to the gear train and disengageable from the coupling means when the pinion is in non-driving position with respect thereto.

ROGER FREDERIC LAURENCE.

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