Nov. 24, 1936. P. J. FITZGERALD 2,061,868

ELECTRICAL UTILITY DEVICE

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Fig. 18

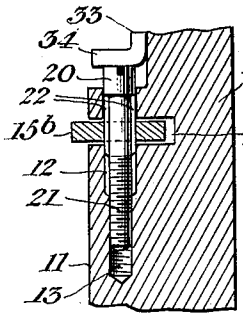


Fig. 1.

Fig. 17.

Fig. 5.

Fig. 7.

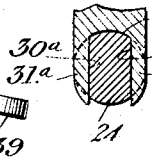
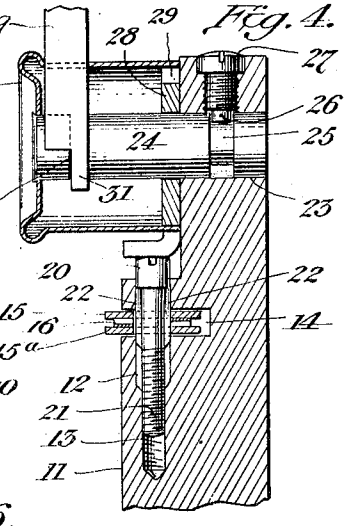


Fig. 4.



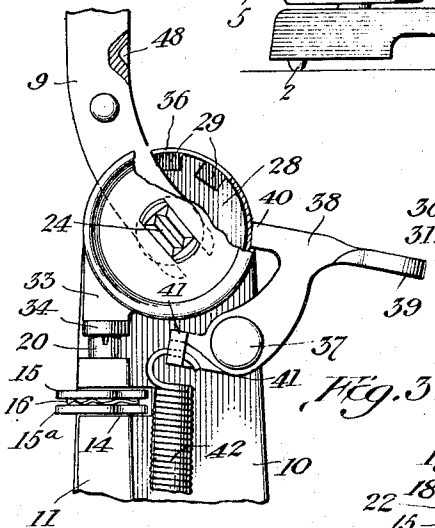


Fig. 3.

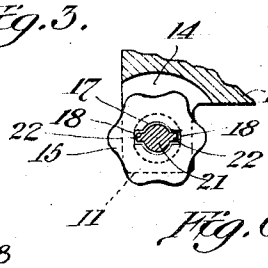


Fig. 6.

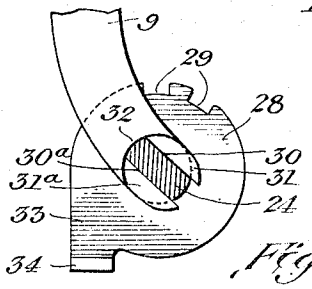


Fig. 8.

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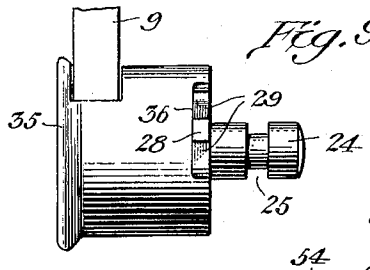
Attorneys

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Fig. 9.



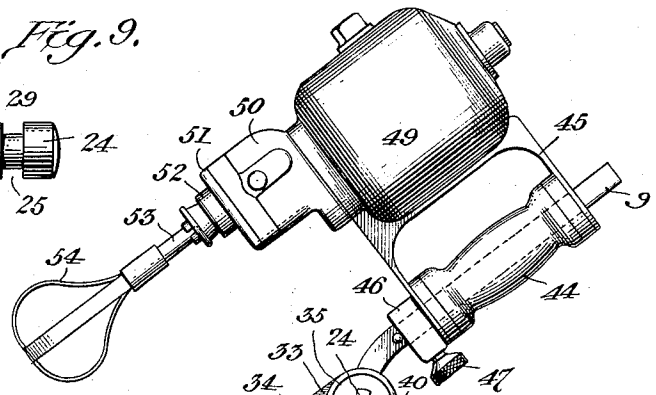


Fig. 2.

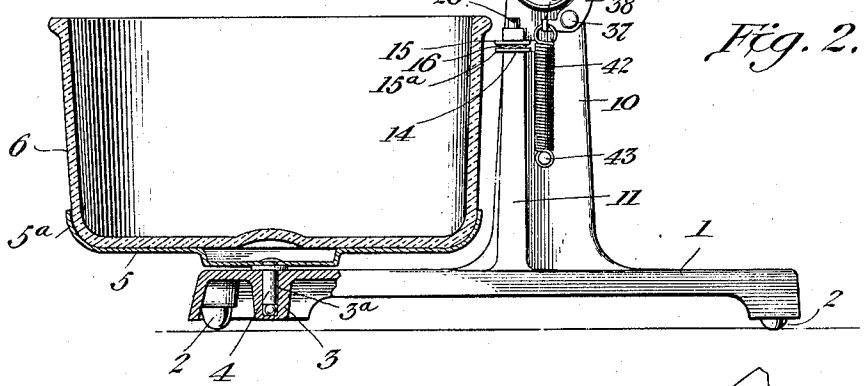


Fig. 10.

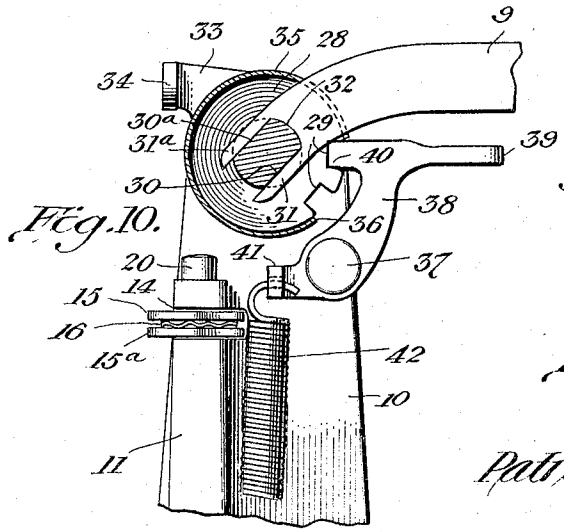
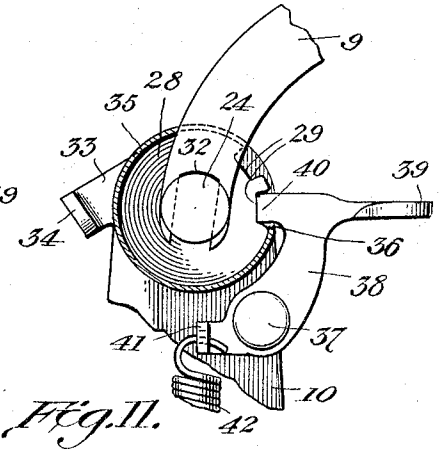


Fig. 11.



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Fig. 12.

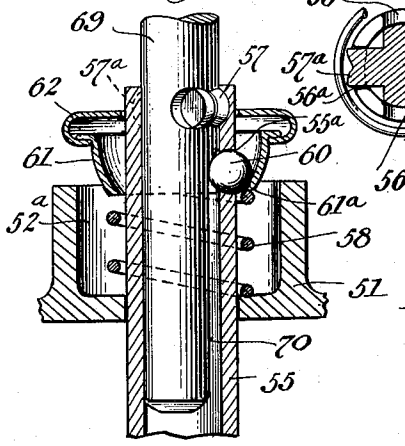


Fig. 13.

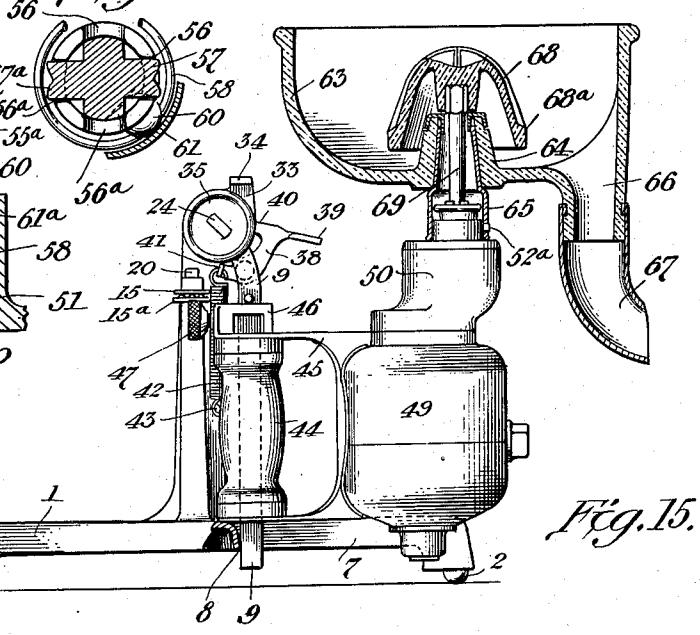
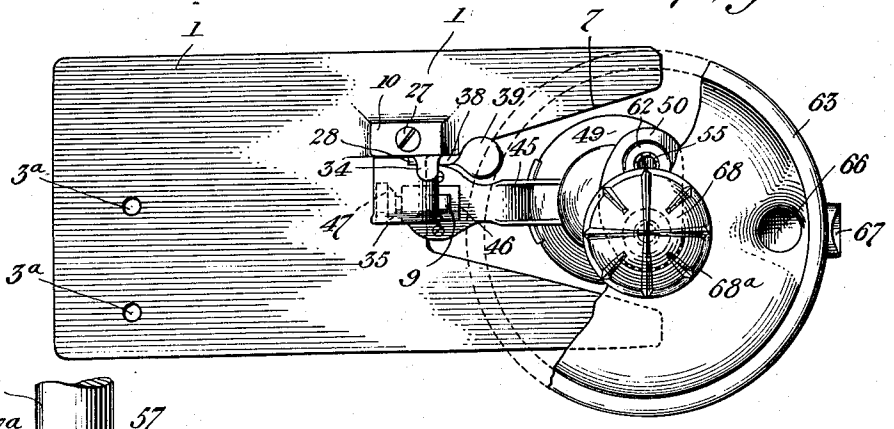


Fig. 15.

Fig. 16.



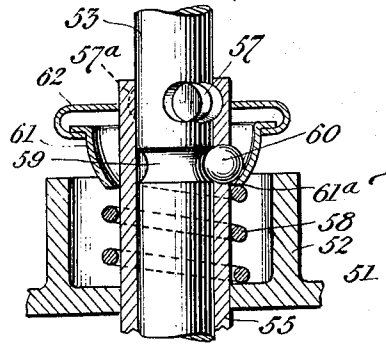


Fig. 14.

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UNITED STATES PATENT OFFICE

2,061,868

ELECTRICAL UTILITY DEVICE

Patrick J. Fitzgerald, Torrington, Conn., assignor to The Fitzgerald Manufacturing Company, Torrington, Conn., a corporation of Connecticut

Application April 12, 1932, Serial No. 604,844

11 Claims. (Cl. 248—23)

This invention relates to improvements in electrical utility devices, and more particularly to an electrical device which may be used for various domestic purposes.

The principal object of the invention is to provide an electrical device of the class referred to, wherein the driving assembly may be moved about a fixed axis to any one of several positions.

A further object of the invention is to provide a device of the above mentioned class, wherein a mixing or beating operation may be performed in one position and wherein an extracting operation may be performed in another position.

A still further object of the invention is to provide a device of the class described wherein the complete assembly of motor and mixing tools may be removed bodily to become a portable device.

The invention further provides an electrical utility device which is readily assembled, easily operated and highly efficient.

In the drawings:—

Figure 1 shows a vertical elevation of the assembled device.

Fig. 2 shows a view similar to Fig. 1 but partly in section and showing the motor assembly in a raised position.

Fig. 3 shows a detail view of the swivel joint about which the motor assembly may rotate.

Fig. 4 shows a cross section view of the said joint.

Fig. 5 shows a detailed perspective view of the swinging arm and shaft connection.

Fig. 6 shows a sectional plan view of the adjustable stop.

Fig. 7 shows an end view in section of the arm and shaft shown in Fig. 5.

Fig. 8 shows an end view of the notched disk and shaft.

Fig. 9 shows an assembled view of the swivel connection.

Fig. 10 is a view similar to Fig. 3 but showing a different position.

Fig. 11 is a view similar to Fig. 10.

Fig. 12 is a vertical view in section of the clamping device with a reaming tool stem therein.

Fig. 13 is a horizontal view in section of the same.

Fig. 14 is a vertical view in section of the clamping device with a beating tool stem therein.

Fig. 15 is a vertical view partly in section of the device ready to perform a reaming operation.

Fig. 16 is a plan view of the same.

Fig. 17 is a detail view of a modified form of the lever engaging the notched disk and the spring for holding the same normally in engagement with said disk.

Fig. 18 is a view similar to Fig. 4 in which however in place of the two star disks 15 and 15ª only one star nut is used.

The invention will now be briefly described. A housing encloses an electric motor and the gearing connections through which are driven the usual mixing tools which are held in suitable clamping devices. The housing is secured by a bracket member to a handle which is slidably mounted on an arm, which arm is attached to a horizontal shaft rotatably mounted in the upper part of an upstanding portion of the base. The said base is adapted to support any suitable mixing receptacle. Suitable securing devices attached to the upstanding portion are adapted to hold the said arm in any desired position. When the driving shaft of the motor is extending downwardly, the device may be used for mixing or beating operations. When, however, the motor assembly is moved about the fixed axis until the driving shaft extends upwardly, a reaming tool may take the place of the beating or mixing tool and the device may be used to extract juices or the like. The motor assembly may be removed by the handle from the supporting arm by loosening a suitable locking screw.

The base 1 is provided with suitable cushion devices 2 upon which it rests. The said base is also provided with one or more downwardly extending bosses 3 in which there are recesses 3ª to receive the pin 4 which is attached to a supporting plate 5 with an upturned flange 5ª. The said supporting plate may thus be rotated and is adapted to support any suitable mixing receptacle 6. The said base 1 has a cut-out portion 7 therein. The inner edge 8 of said cut-out portion serves as a stop for the arm 9 when said arm is in the position shown in Fig. 15. Integral with the base 1 is an upstanding post 10 which is provided with a vertical rib portion 11. The said rib portion has a vertical recess 12 which merges into a threaded recess 13 of slightly smaller diameter. Extending horizontally through the recess 13 is a slot 14, into which the star disks 15, 15ª with a spring washer 16 therebetween, are placed. Each of said star disks is provided with a central opening 17 which has diametrically opposite slots 18. A bolt 20, having a lower threaded portion 21 which is adapted to be screwed into the recess 13, is provided with diametrically opposite vertical ribs 22 which are adapted to extend through and fit closely within the slots 18 in the star disks 15, 15ª. Thus the ribbed bolt serves as a key to hold

the disks in fixed relation so that when the disks are turned, the bolt will likewise be rotated. A single start nut 15b may be used in place of the star disks 15 and 15a. (See Fig. 18.)

The upstanding post 10 has an aperture 23 in which the shaft 24 is closely fitted. The said shaft is provided with a circumferential groove 25 into which a protruding portion 26 of a screw 27 extends. Thus the shaft is permitted to rotate but cannot have an endwise movement unless the said screw is withdrawn. Adjacent the upstanding post 10 is a disk 28 fixedly mounted on said shaft 24. The said disk is provided with notches 29 on a portion of the circumference. The shaft 24 is also provided with grooves 30, 30a into which are fitted the forked ends 31, 31a of the arm 9 which has a concave seat portion 32 adapted to rest on the said shaft. The tips of the forked ends 31, 31a are then clinched to firmly fasten the said arm to the shaft 24. The disk 28 has a tangentially extending portion 33, the end 34 of which is bent at right angles thereto so that it may rest on the head of the bolt 20, which serves as an adjustable stop. A casing 35 encloses the shaft 24 and is secured thereto. The said casing rotates with the said shaft and is provided with suitable openings through which the arm 9 and the portion 33 extend. The casing is also provided with an aperture 36 above the notched portion of the disk 29. A rivet 37 pivotally supports the lever 38 to the upstanding post 10. The said lever is provided with a thumb portion 39 and a portion 40 which is adapted to fit in the notches 29 and so hold the disk 28 and shaft 24 against rotation. An angular portion 41 on the said lever is engaged by a spring 42 secured to the upstanding post 10 by a screw 43 and by the action of the said spring the lever is normally held in engagement with the disk 28.

In Fig. 17 is shown a modified form of the lever 38 in which the angular projection 41a of the lever engages the spring 42a which is seated in the bracket arm 10 dispensing with the angular projection 41 and the spring 42 shown in Fig. 3 of the drawings.

Slidably mounted on the arm 9 is a handle portion 44 to which is secured a bracket 45. A housing 46 provided with a locking screw 47 is secured to the said bracket. A depressed portion 48 in the arm 9 receives the end of the screw 47 and thus the bracket and handle may be locked in position on the said arm. The bracket 45 supports the electric motor housing 49 to which is secured a gear housing 50 provided with a closing plate 51 which has a flange or collar portion 52 in which are placed the chucks (Figures 12 and 13) which receive and hold the stem 53 of the beating or mixing tool 54. The clamping device or chuck will now be described in detail as shown in Figures 13 and 14. The sleeve 55 is driven by suitable connections from the motor and the exposed end of said sleeve has pairs of oppositely positioned cut-out portions 56, 56a at intervals around its circumference, thus permitting the diametrically opposite projections 57, 57a on the stem 53 to fit therein. The said sleeve extends through the closing plate 51 and centrally through the flange portion 52. One end of a clamping spring 58, which encircles the said sleeve, rests upon the closing plate 51. The other end of said clamping spring presses against the inturned edge 61a of a conical member 61 to which is securely attached a closing disk 62. The said conical member surrounds the sleeve 55 and encloses a clamping ball 60 which is loosely held therein. The said spring normally holds the conical member 61 in a position shown in Figure 14. Thus the clamping ball 60 is wedged far enough through the opening 55a in the sleeve 55 so that it will extend into the groove 59 so that the stem cannot be withdrawn. The projections 57, 57a which are fitted within the cut away portions 56, 56a of the sleeve 55 thus lock the said stem so that only rotation of the sleeve will impart rotation to said stem. When it is desired to remove the stem, the closing disk 62 is forced into the flange portion 52a. This movement of the closing disk likewise forces in the conical member, so that the clamping ball 60 is released from the groove 59 and the stem may be thus removed.

As shown in Figure 12, the stem 69 of a reaming tool has a flattened guide portion 70 which permits the tool to be withdrawn without forcing the conical member into the flange portion 52. It is apparent that since the machine is in a position as shown in Figure 15 when the reaming tool is used, no clamping action is necessary to prevent the tool from dropping out.

It is obvious from the foregoing description that this utility device may be used for a mixing or beating operation when it is in a position as shown in Figure 1. The bolt 20, which may be raised or lowered by turning the star disks 15, 15a provides an adjustable stop for the member 33 so that the angle of the beater stem 53 may be varied at will. When it is desired to remove the receptacle 6, the lever 38 may be swung outwardly by pressing the thumb portion 39 so that the portion 40 becomes disengaged from the notch 29 and then the whole motor assembly may be rotated about the shaft 24 until the height of the beating tool 54 is such that it is above the top of the receptacle 6.

It may be desirable to use the utility device as a juice extractor, in which case, the motor assembly is rotated about the shaft 24 to a position as shown in Fig. 15. In this position, the motor and housing 49 are in an inverted position. Of course, the beating or mixing tool 54 is removed from the chuck. A bowl 63, having an upturned fluid diverting wall 64 to which is secured a downwardly extending cup-shaped flange 65, is then placed upon the gear housing 50 so that a pin 52a on the collar member 52 may engage a suitable slot in the downwardly extending flange 65 to prevent rotation of the said bowl. The bowl 63 is provided with an outlet 66 to which is secured a suitable spout 67 to direct the extracted juices to some receptacle. A reaming tool 68, having a depending flange 68a extending below the top of said fluid diverting wall 64, is provided with a stem 69 which fits in the clamping device or chuck heretofore described.

Then again, it may be desirable to use this utility device as a hand mixing tool if the receptacle to be used is too large to fit on the supporting plate 5. In such a case, the locking screw 47 may be loosened to permit the entire motor and beater assembly to be withdrawn from the arm 9. The operator may then hold the assembly by the handle 44 and perform the mixing or beating operation in this way.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In an electric utility device having a frame and a motor assembly, a shaft mounted on said frame and adapted to pivotally support said

motor assembly, a notched member carried by said shaft, a catch pivotally mounted on said frame, and spring actuating means for normally holding said catch in engagement with said notched member whereby the motor assembly may be held in a plurality of positions with respect to said shaft.

2. In an electric utility device having a frame and a motor assembly, a shaft mounted on said frame and adapted to pivotally support said motor assembly, a notched member carried by said shaft, said notched member having a projecting portion, a catch pivotally mounted on said frame, spring actuating means for normally holding said catch in engagement with said notched member whereby the motor assembly may be held in a plurality of positions intermediate the limits of rotation about said shaft, and an adjustable stop member on said frame upon which said projecting portion is adapted to rest when the motor assembly is in one operative position.

3. An electric utility device comprising a frame, a shaft mounted on said frame, a motor assembly mounted on said shaft and adapted to be rotated through an angle of substantially 180°, and means including a pivoted lever, a notched disk cooperating therewith and a recess in said base for holding said motor assembly in any one of several positions throughout the angle of possible rotation.

4. An electric utility device comprising a base, an upright post thereon, a swinging arm pivotally mounted on said post, a motor assembly mounted on said swinging arm in substantial alignment with said post, and a recess in said base adapted to receive said swinging arm and hold the same substantially parallel to said post where said arm and motor assembly are rotated through an angle of substantially 180°.

5. An electric utility device comprising a base, an upright post thereon, a horizontal shaft rotatably mounted in said post, an arm secured to said shaft, a motor assembly mounted on said arm, a notched disk secured to said shaft, and a lever pivotally mounted on said post and adapted to engage said notched disk whereby to hold said motor assembly in any one of several positions.

6. An electric utility device comprising a base, an upright post thereon, a shaft rotatably mounted in said post, a standard secured to said shaft, a motor assembly mounted on said standard, means for adjustably holding said arm in substantial alignment with said post, said means including a radially extending arm secured to said shaft and a cooperating stop device mounted on said post, said radially extending arm being adapted to rest upon said stop device when the standard is in substantial alignment with said post, and a recess in said base, said recess being adapted to receive said standard when the same is rotated through an angle of substantially 180° whereby to hold the standard substantially parallel to said post.

7. An electric utility device comprising a base, an upright post having an offset portion, a horizontal shaft mounted for rotation in said post, a standard secured to said shaft, a motor assembly mounted on said standard, a radially extending arm secured to said shaft, a threaded member passing vertically into said offset portion of the post, a disk engaging said threaded member whereby to adjust the same, said radially extending arm being adapted to rest upon the end of said threaded member when the standard is in substantial alignment with said post whereby to adjust the angle of said standard, and means for engaging said shaft whereby to support the motor assembly in any one of several positions throughout an angle of substantially 180°.

8. An electric utility device comprising a base, an upright post thereon, a horizontal shaft mounted for rotation in said post and extending beyond said post, a standard mounted on the outwardly extending portion of said shaft, a notched disk mounted on said shaft, a cup-shaped member enclosing said shaft and a portion of said disk, and means for engaging the notched portion of said disk whereby to hold the standard in any one of several positions as the said standard is rotated through an angle of substantially 180°.

9. In an electric utility device, a base having an upright post thereon, a horizontal shaft having a circumferentially grooved end mounted in said post for rotation, a threaded member engaging said post and adapted to extend into the grooved end of said shaft whereby to prevent endwise movement thereof, the opposite end of said shaft being provided with parallel cut-out portions, a standard having a forked end, the forked end of said standard being interconnected with the cut-out portions of said shaft whereby to support the standard, a motor assembly mounted on said standard, and means for supporting said motor assembly in any one of several positions as the standard and shaft are rotated.

10. An electric utility device comprising a base, an upright post thereon, said base having a cut-out portion at one end thereof adjacent said post, an arm pivotally mounted on said post, a motor assembly mounted on said arm, said arm being adapted to abut against the edge of the cut-out portion in said base when parallel to said post, and means for holding said arm in other positions about its pivot whereby the device may be used for different operations.

11. An electric utility device comprising a base having an upwardly extending post intermediate the ends thereof, a mixing bowl retainer at one end of said base, said base having a recess at the opposite end thereof for providing a stop, a horizontal shaft mounted in the upper end of said post, a motor assembly including tool driving clutches mounted on said shaft as a pivot, said motor assembly being rockable about said pivot from a position wherein said clutches extend downwardly over the bowl retainer for a mixing operation to a position wherein said motor assembly abuts against said stop with said clutches extending upwardly whereby a bowl may be removed from said bowl retainer, and means on said post for holding the motor assembly in selected positions.

PATRICK J. FITZGERALD.