March 26, 1940. L. N. SMITH 2,195,100

HOUSEHOLD POWER UNIT

Original Filed Feb. 27, 1934 3 Sheets-Sheet 1

Fig. 1.

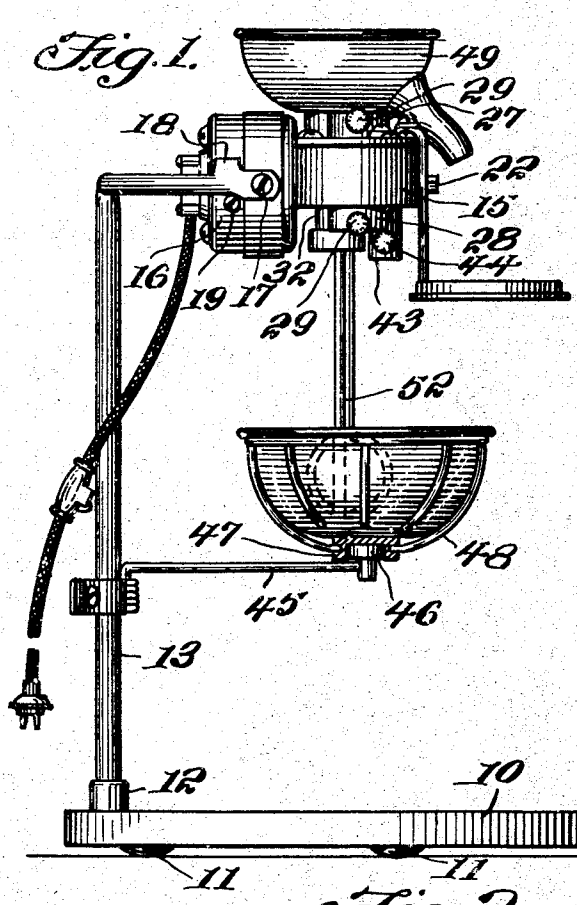


Fig. 3.

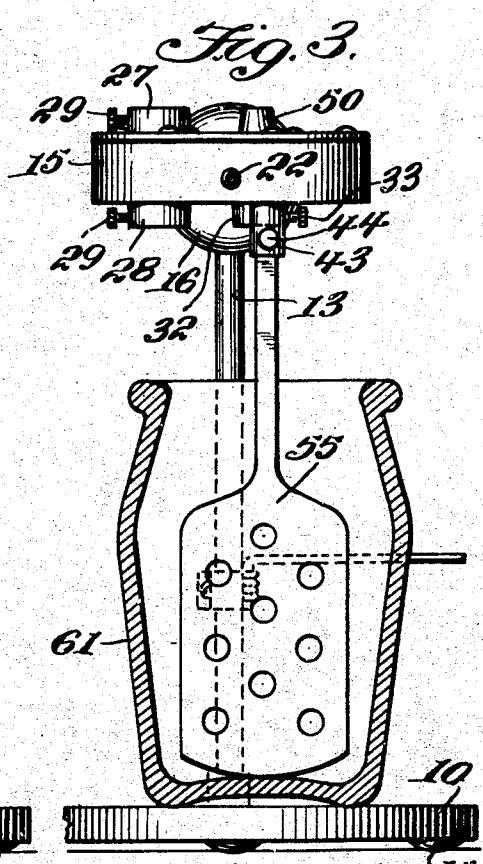


Fig. 2.

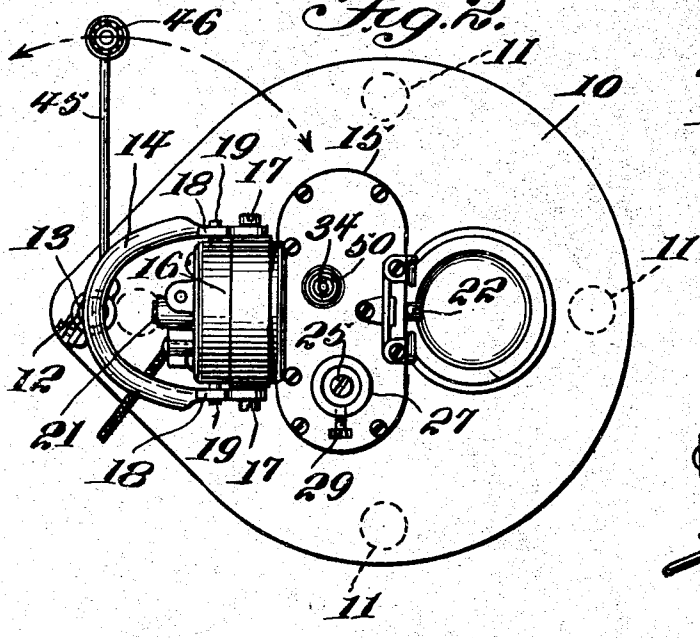
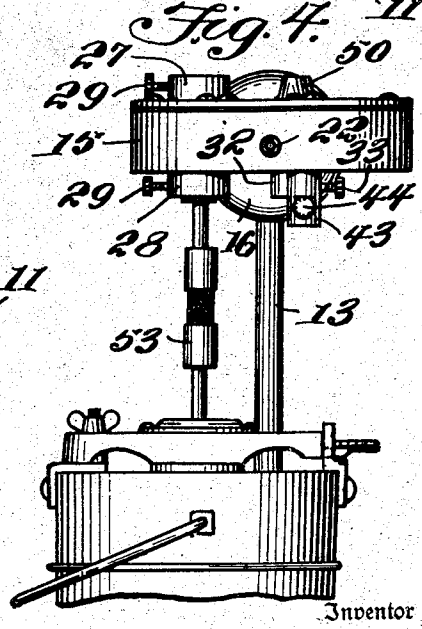


Fig. 4.



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Fig. 5.

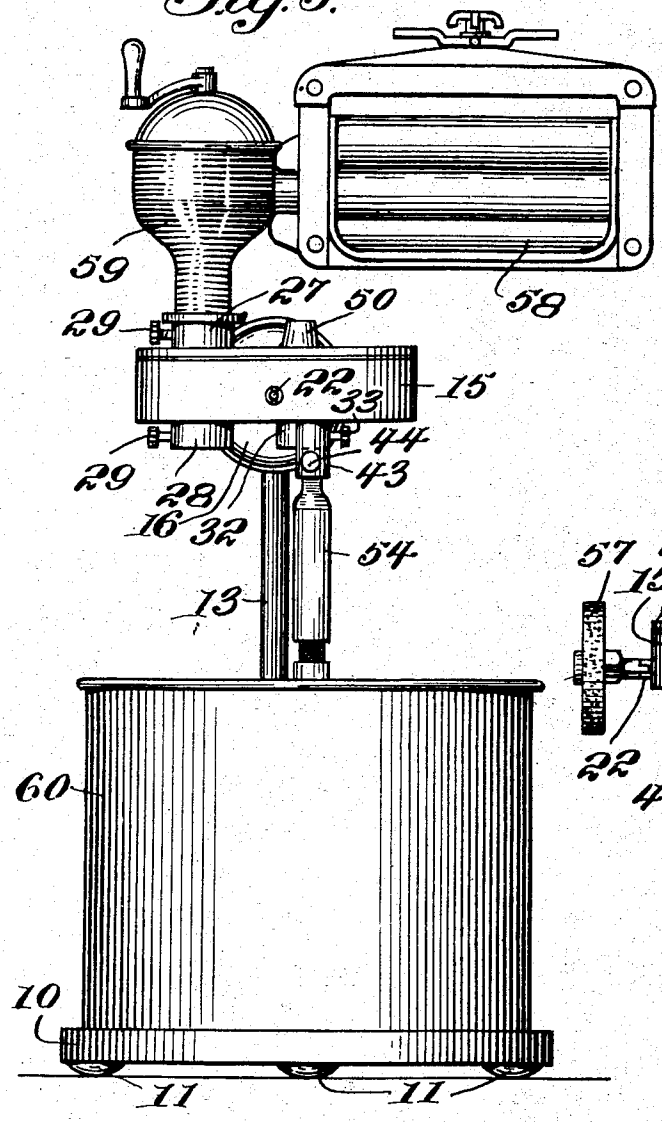
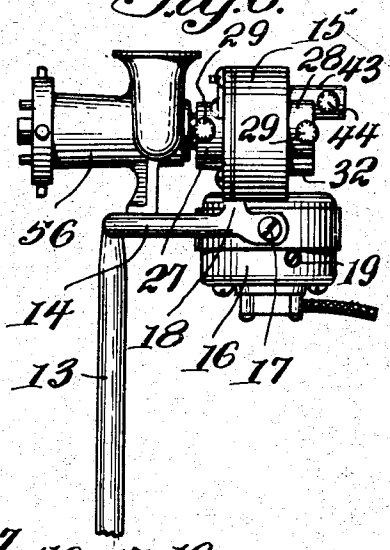


Fig. 6.



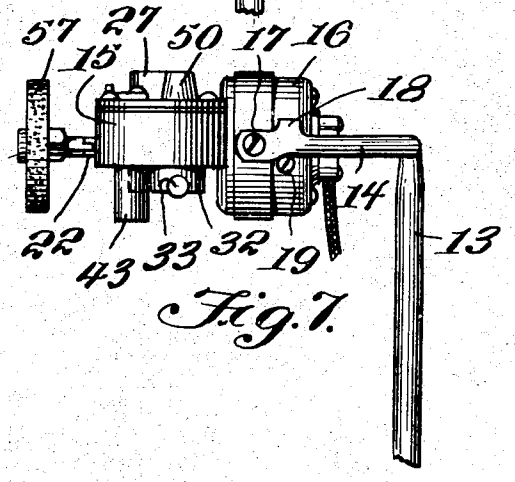
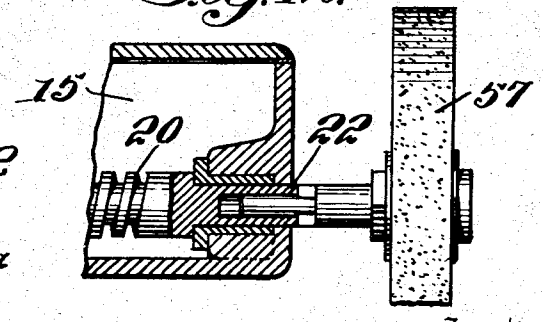


Fig. 7.

Fig. 12.



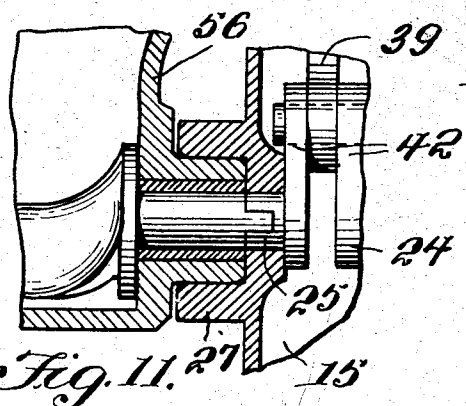


Fig. 11.

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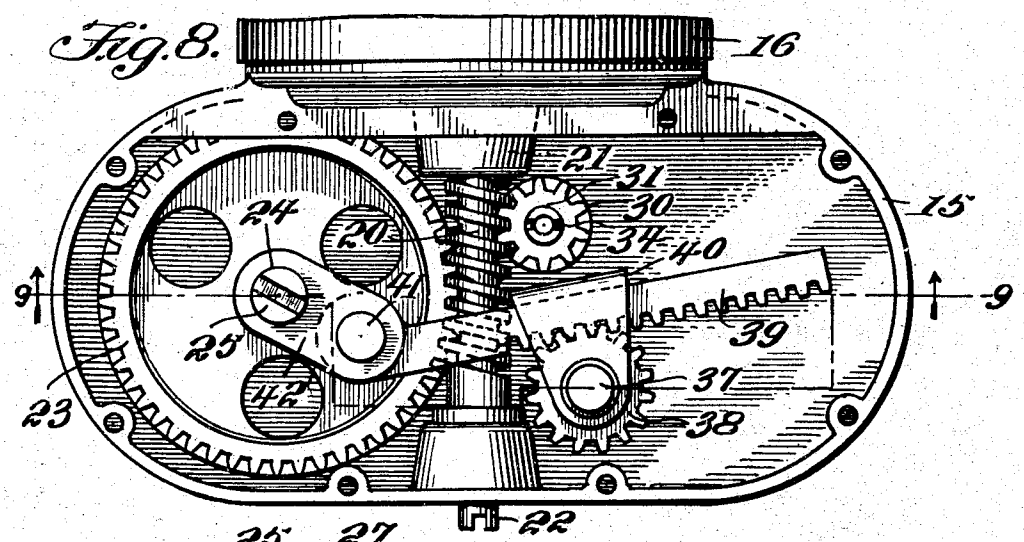
Attorneys

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Fig. 8.



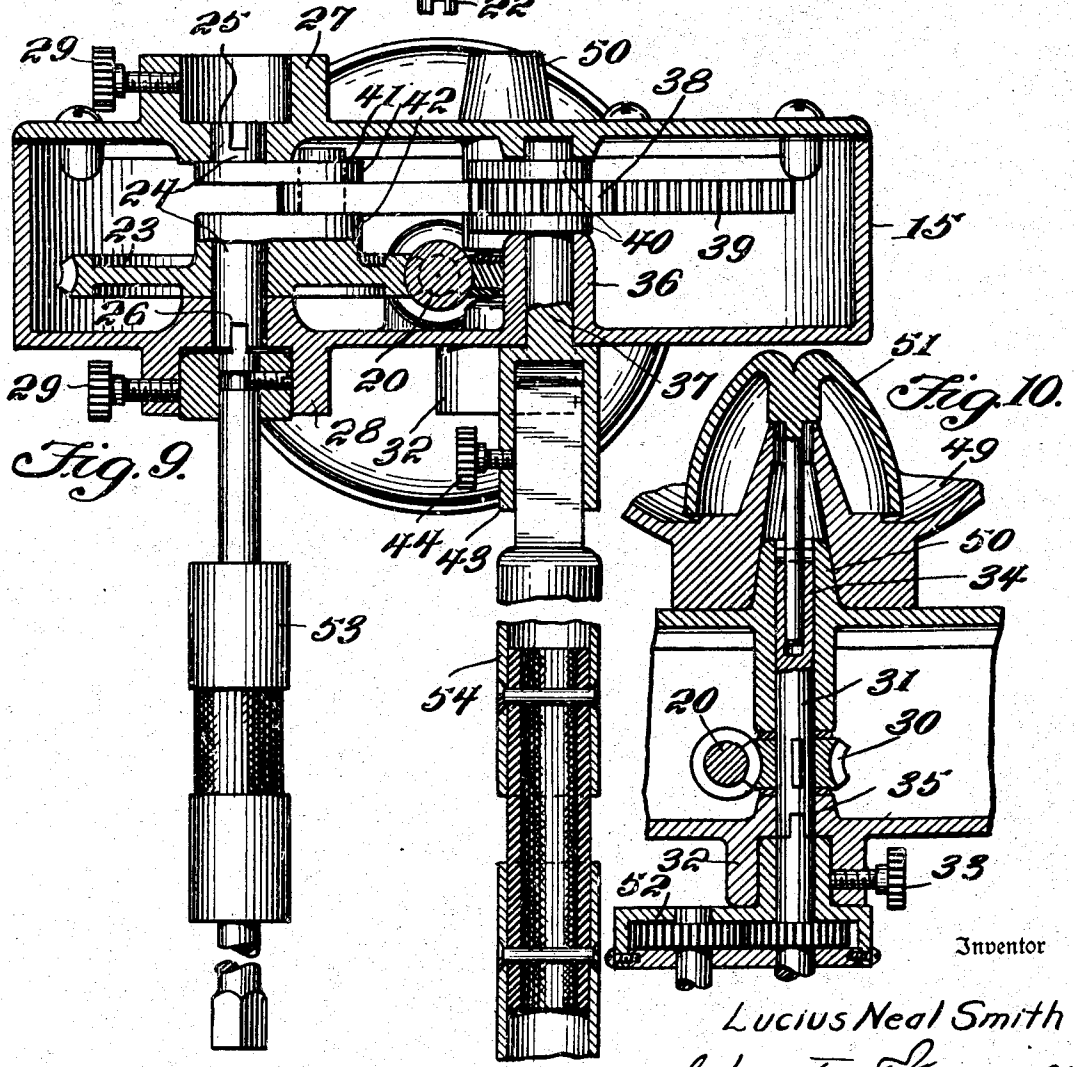


Fig. 9.

Fig. 10.

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Patented Mar. 26, 1940 2,195,100

UNITED STATES PATENT OFFICE

2,195,100

HOUSEHOLD POWER UNIT

Lucius Neal Smith, Emory University, Ga., assignor of one-half to Clarence R. Medley, Columbus, Ga.

Original application February 27, 1934, Serial No. 713,223. Divided and this application March 17, 1937, Serial No. 131,360

3 Claims. (Cl. 74—16)

This invention relates to a motor driven general utility household appliance comprising a portable stand carrying an electrically operated motor unit which is readily convertible to various driving positions.

My present invention is a division of the application filed by me on February 27, 1934, Serial No. 713,223, wherein the details of the transmission mechanism are specifically claimed.

The primary object of my present invention is to design a machine of the character in question in which the motor and transmission are assembled as a unit which is supported by a side standard in a novel manner so as to hang substantially centrally above a heavy base free to be shifted from one to another of its diverse operating positions on said standard in all of which it will be overbalanced so as to remain set in the selected operating position without anchorage.

More specifically, my invention contemplates a motor unit pivotally suspended from a standard and having stops adapted to coact above and below with the standard so as to arrest the motor unit in the desired operating position, the motor unit in its several positions remaining in substantially balanced relation to the stand base but in over-balanced relation as regards the particular stop in service at the time, thus leaving the motor unit free to be readily shifted into various operating positions and to remain in such positions without having to be clamped or made fast.

My invention further comprises the novel details of construction and arrangements of parts which, in their preferred embodiments only, are illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of the machine showing the same constructed in accordance with my invention and having a juice extractor and bowl rack associated therewith.

Fig. 2 is a top plan view with the juice extractor removed and the bracket for the bowl rack swung away from the base.

Fig. 3 is a fragmentary front elevation showing the use of the machine as a churn.

Fig. 4 is a view similar to Fig. 3 showing the machine used as an ice cream freezer driver.

Fig. 5 is an elevation showing the application of a wringer and washing machine therewith.

Fig. 6 is a fragmentary elevation showing the use of the machine for driving a meat grinder.

Fig. 7 is a side elevation showing the machine for use as a tool grinder.

Fig. 8 is an enlarged top plan view showing the top of the gear casing removed.

Fig. 9 is a sectional view on the line 9—9 of Fig. 8.

Fig. 10 is a fragmentary sectional view showing the drive connection between the fruit extractor and a mixer.

Fig. 11 is a fragmentary sectional view showing in detail the connection between the meat grinder and the drive mechanism of the machine.

Fig. 12 is a detail sectional view showing the connection between the tool grinder and the drive of the machine.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, the machine comprises a base 10, in this instance of approximately circular contour but which may be of any other desirable shape, having on its underside suitable feet 11 by which it will be slightly elevated from a floor, foundation or other support. Carried by the base near the marginal edge thereof is a vertical socket 12 for accommodating a standard or post 13 which may be of any desirable height according to the requirements of use of the machine, and this standard, at its upper end, is formed with a horizontally directed fork or yoke 14 for accommodating and supporting a swingingly mounted gear casing or housing 15 joined with an electric motor 16, either for direct current or alternating current, and the same being adapted for separable connection with any suitable source of current supply. The motor 16 has the trunnions 17 journalled in the arms of the yoke or fork 14, so that the casing or housing may be swung in a vertical direction and is limited in its swinging movement through the medium of stops 18 and 19, respectively, the stops 18 being formed on the yoke or fork 14, while the stop 19 is formed on the motor. It will be noted that the motor unit as adapted to its various uses remains overhung substantially above the center of the base 10 so that it will not tend to materially unbalance the machine by being shifted from one to another of its operating positions.

The detailed arrangement of the gear drive within the housing 15 forms the subject matter of my companion application aforesaid and need not therefore be described herein in full detail. Suffice it to say that within the housing I arrange a worm screw shaft 20 forming an extension of or coupled to a motor driving shaft 21 and comprising a coupling terminal 22, representing a high speed drive, projecting without the end of the housing. The worm shaft 20 meshes a large worm gear 23 on a crank shaft 24 extending through opposite sides of the housing 15 to provide exposed terminals 25 and 26 in the sockets 27 and 28 respectively. The worm shaft 20 also drives a small worm gear 30 fast on an arbor 31 extending through opposite sides of the housing and providing exposed coupling terminals 34

and 35, the latter of which is centered in a socket 32 carrying a set screw 33. These terminals 34 and 35 are for the connection of the transmission to appliances to be operated at a greater speed than is available through the gear 23. The housing comprises a rack bar 39 passing through a swinging guide 40 which is loose on the stud shaft 37. The rack bar is driven by the crank 42 of the shaft 24 and will impart an oscillatory motion to shaft 37 and thence to a socketed sleeve-like coupling 43 adapted for an attachment by set screw 44 to an appliance to be driven by oscillatory action.

Adjustably carried upon the post 13 is a bracket 45 susceptible of horizontal swinging movement and at the free end of the same is a ball bearing equipped rotatable head 46 constituting a male fitting for a female coupling 47 on a bowl rack 48 which, when containing the bowl having contents, is free for rotation so as to assure a thorough mixing of the contents of the bowl when a mixer appliance 52 is operating within the bowl and driven by the machine.

In Fig. 1 of the drawings the casing or housing 15 carries on top a fruit juice extractor comprising a bowl 49 which fits over the boss 50 (Fig. 10) about the arbor 31, and this arbor, through its coupling terminal 34, has connection with and drives the juice extractor cone 51 working within the bowl 49. At the lower side of the casing or housing 15 I show the mixer appliance 52 fastened in the under socket 32 and having connection with the arbor 31 to be driven thereby. These several appliances increase the unbalanced condition of the motor unit and hold its stop 19 firmly against the fork 14.

Adapted to be engaged in the socket 28 is a flexible connection 53 (Fig. 9) for driving an ice cream freezer or other appliance.

Adapted for connection with the sleeve-like coupling 43 (Fig. 9) is the driven flexible shaft 54 or the churn paddle 55, Fig. 3.

Engageable with the coupling terminal 25 of the up-turned housing 15 (Fig. 6) is the driven part of a meat grinder 56, the same being detachably secured in the socket 27.

Engageable with the terminal 22 of the shaft 20 is a tool grinding disk or wheel 57, Fig. 7.

Thus it will be seen that the machine is susceptible of operating many different kinds of appliances, particularly those that have to do with household or kitchen purposes or for farm activities, as for example, churning, and for operating a clothes wringer, washing machine or other contrivance.

In the use of the machine as a churn, of course, it is understood that the bracket 45 is either removed, or shifted out of the way of the churn body when it is placed upon the base 10, the bracket being in service only in connection with the operation of the machine as a mixer.

In Fig. 5 of the drawings there is shown a clothes wringer 58 which has its mounting 59 engaged in the socket 27, and resting upon the base 10 is a washing machine body 60, while in Fig. 3 the churn body 61 rests upon said base.

In Figs. 1 to 5 the center of gravity of the motor unit is substantially central above the base, with its stop 19 engaged beneath the fork. In this position the unit itself is overbalanced with reference to its trunnions so as to hold itself set in this operating position.

In Fig. 6 the motor drive unit without material change in its center of gravity is swung through an arc of 90° which brings the housing 15 into engagement with a stop 18 on top of the fork 14, and in this position the motor drive unit is unbalanced with respect to its trunnions in the opposite direction so that it will hold itself set in this position and the unit 56, which it drives, will further unbalance it so it can be held to this operating position without being fastened. The motor drive unit is thus adapted to be readily shifted from one to another of its unbalanced operating positions without displacing its center of gravity substantially from a central overhanging position above the base and without necessity for anchoring it in any of its operating positions.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications, without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What I claim is:

1. In a household appliance, a base, a standard rising from the margin of the base and having a bracket overhanging the base, a motor and transmission assembly pivotally mounted on said bracket and having a plurality of differently disposed power take-off outlets, coacting stop elements on the standard and assembly disposed on the same side of said standard and adapted selectively to be engaged so as to support said assembly in its various operating positions in which different power take-off outlets are selectively brought into operative position with relation to different appliances to be driven, the center of gravity of said assembly remaining throughout its operating positions disposed substantially over the center of said base and in position with relation to its pivotal axis to be held by gravity in any selected operating position.

2. In an appliance of the character described, a base, a stand thereon having offset towards the center of the base a top bracket arm terminating in a pivot bearing, a motor driven driving mechanism pivoted in said bearing and having a plurality of differently directed power take-off outlets for interchangeable driven appliances, and top and bottom coacting stop elements on said mechanism and stand disposed to limit the swing of the mechanism substantially to a 90° arc and present same in different operating positions in which different power take-off outlets are selectively brought into operative position for use with different driven appliances, the bracket arm being elongated and adapted to receive and directly support a driven appliance when the mechanism is stopped in its uppermost position.

3. In a household appliance, a motor unit comprising an electric motor and a multiple drive transmission, a flat rounded base adapted to receive household devices to be operated by said motor unit, a marginal standard rising from said base and having a rigidly mounted bearing yoke overhanging the center of the base, means to pivotally mount the motor unit in said yoke so that its center of gravity hangs substantially over the center of the base in its various operating positions, and stops on the unit and yoke disposed to be held selectively engaged by the unbalanced condition of the motor unit and its driven element in its several operating positions.

LUCIUS NEAL SMITH.