

Dec. 14, 1965

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3,222,939

KITCHEN APPLIANCE DRIVE UNIT

Filed July 16, 1962

3 Sheets-Sheet 1

FIG. 1

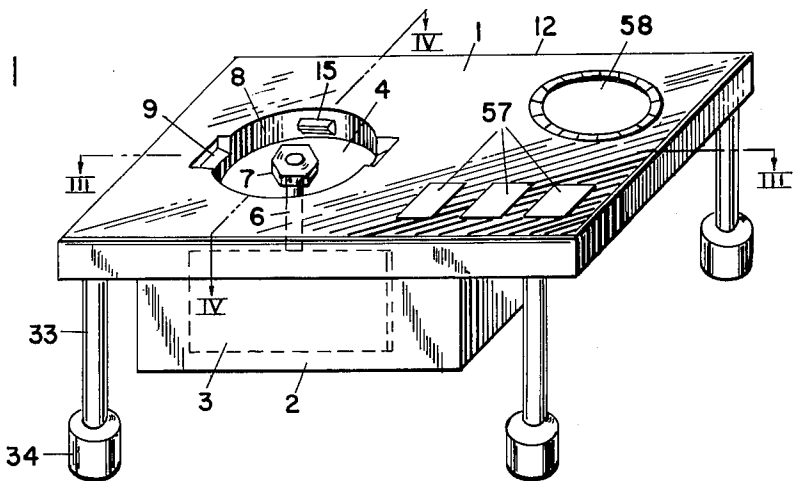


FIG. 2

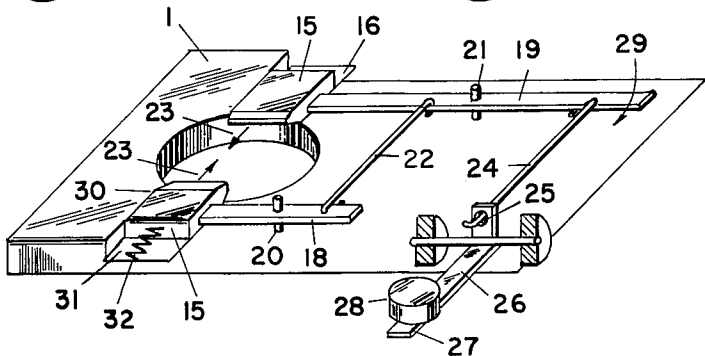
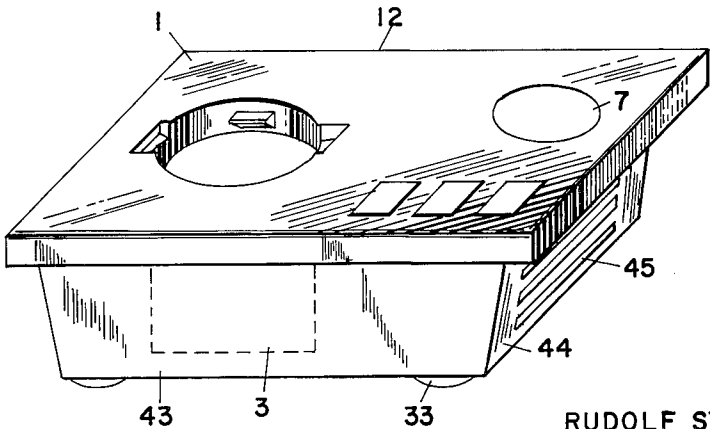


FIG. 5



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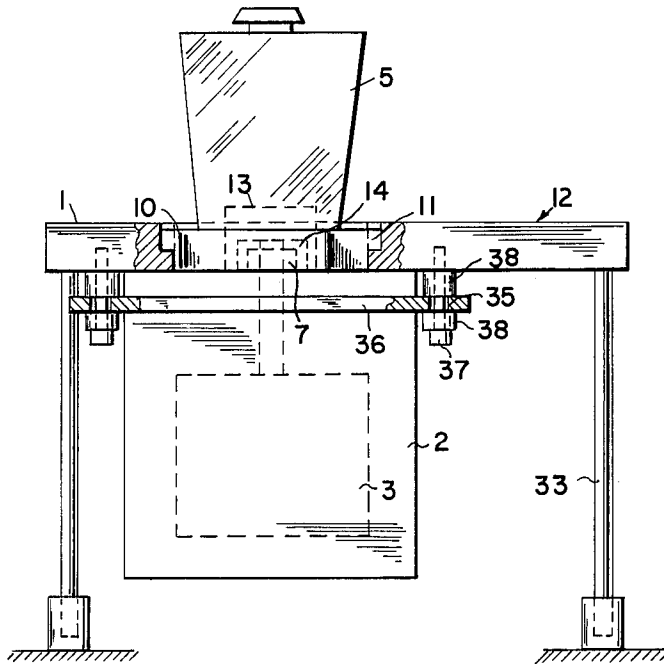


FIG. 3

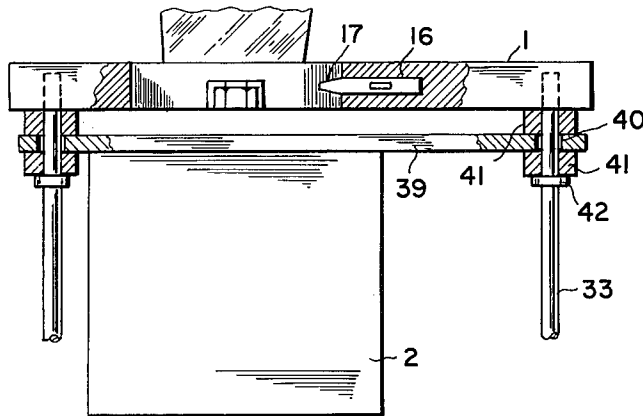


FIG. 4

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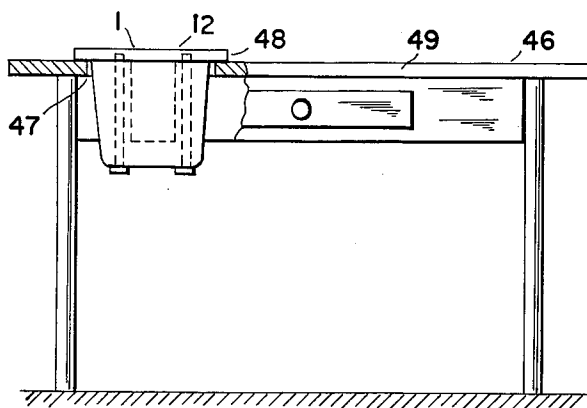


FIG. 6

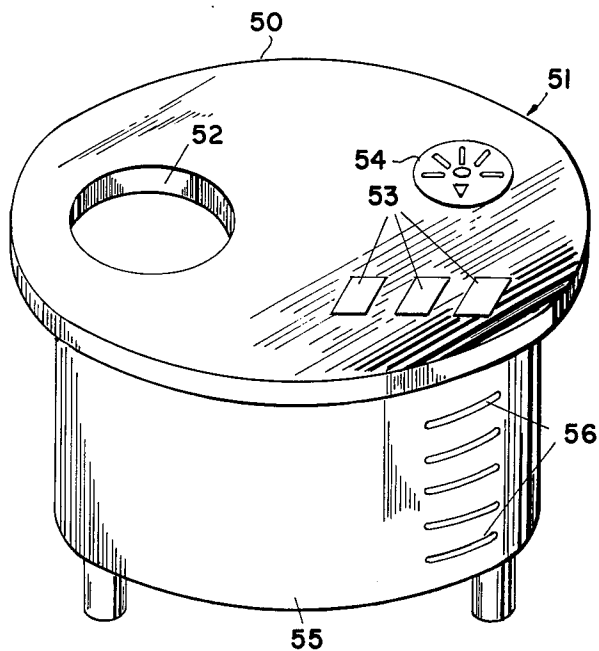


FIG. 7

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KITCHEN APPLIANCE DRIVE UNIT

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St 18,094

3 Claims. (Cl. 74-16)

This invention relates to a basic unit for electrical kitchen appliances, particularly box-shaped, which can be used to fit into existing furniture or as a mere basic unit.

The basic units disclosed up to now are not suitable or rather unsuitable for such alternative use. With the box-shaped known basic units being the casing of the driving member (motor), the driving member is provided on the ground plate of the unit; this ground plate at the same time being the foundation plate. If such a unit shall be used to fit into existing furniture a close fastening with the surface of the object provided for this fitting will be lacking. Even if it would be possible to achieve a rigid fastening by special construction of the upper parts of the casing, the unit consequently must be built so high, that it would be rather unsuitable as a basic unit.

The basic unit according to the present invention consists of a plane plate being the foundation plate as upper part and a bottom part shaped as a casing. The plate is shaped in such a way that it is projecting on all sides beyond the casing. If the unit is used to fit into existing furniture, under the provisions of the construction of the invention the construction guarantees a rigid upper fastening like a flange mainly where the fastening with the piece of furniture is to be realized. The motor member is elastically mounted on the plate.

Thus the vibrations of the driving member will not influence the plate. On its surface the plate has a recess, mostly of circular shape, to receive the kitchen appliances, such as a mixer, stirrer, etc. Also all the operating handles, like switches etc., are provided on this surface. At especially suitable parts of the plate column-like bars are provided, which are pushed through the casing. The bars are of a rather hard material having still a certain elasticity. According to the invention these bars serve as base, if the unit is used as basic unit. Using a rather hard, but nevertheless still elastic material makes it possible to divert the horizontal vibrations caused by the driving motor. The bars could also be used as means for the assemblage or release of the plate from the housing, in case the plate and the casing are not constructed as one piece, but are merely assembled together. Following the invention, the recess in the plate, at especially suitable parts, is provided with grooves to secure the kitchen appliance against twisting during operation, and it is also provided with elastic supports (spring supports) like projecting noses; thus the kitchen apparatuses with their corresponding openings can be catch-linked with the plate. In the recess the junction point of the central drive member for the kitchen appliance is arranged. The release of the kitchen apparatus from the plate is realised by a pressing device, preferably a press button, exercising an eccentric or lever or the like, preferably provided at the bottom part of the plate; this pressing device then actuates against the elastic supports. The casing in the usual way is provided with passages for airing. If a motor of small height is used, or if the motor is arranged in a special way, the construction of the unit under the provisions of the present invention makes it possible to use the implement vice versa as a basic unit or as a unit to fit into existing furniture. Contrary to the known devices the basic unit according to the invention is not opposing this double functioning.

Details of the present invention will be disclosed by reference to the accompanying drawings:

FIGURE 1 is a perspective view of a basic power unit with rectangular suspension plate and four supporting legs, with the kitchen appliance removed from the basic unit;

FIGURE 2 is a perspective diagrammatic view of the locking device for the kitchen appliance;

FIGURE 3 is a vertical sectional view taken along the line III—III of FIG. 1 with kitchen appliance attached; FIGURE 4 is a partial section taken on the line IV—IV of FIGURE 1;

FIGURE 5 is another form of construction of the basic unit with rectangular suspension plate;

FIG. 6 is an elevational view of a basic power unit according to the invention fitted into a kitchen desk; and

FIG. 7 is a perspective view of a basic unit with circular upper plate.

According to FIGS. 1-3, the basic unit consists of a rectangular plate 1, to the lower side of which is secured the housing 2 together with the electric drive member 3 (broken lines in FIG. 1). Directly above plate 1 is provided with a recess 4 to receive the appliance 5. A coupling means 7 of hexagonal shape is secured to the upper end of the drive shaft 6 of motor 3 and projects into the center of the recess 4. The cylindrical wall 8 of recess 4 is provided with diametrically opposing rectangular grooves 9, opening upwards and reaching only about to the middle of the cylinder wall 8.

The appliance 5, which may be a mixer, stirrer or the like, has a cylindrical flange 10 at its lower part which at diametrically opposing parts is provided with noses 11 formed to interlock with the grooves 9. If the appliance 5 is put on the plate 1 of the basic unit 12, the noses 11 engage in the grooves 9 thus securing the appliance against twisting. The upper coupling part 13 fixed to the appliance 5 with the hexagon recess 14 overlaps the coupling means 7 of plate 1 when put together, and the appliance 5 is connected with the drive member 3.

To secure the appliance against accidental detaching during operation or against tossing and hurling due to vibrations, retaining keys 15, offset by 90° from one another towards the grooves 9, are provided at diametrically opposed positions within plate 1 in openings 16 and project over the cylinder wall 8 towards the interior where they link with the corresponding openings 17 in flange 10 of the appliance 5.

To actuate the retaining keys 15 they are secured to a double lever 18, 19 guided in openings at the underside of plate 1, and movably arranged around pivots 20, 21. The two levers 18, 19 are connected with one another by a transverse coupling bar 22 in such a way that if one lever is displaced in one direction, the other will automatically move in the opposite direction, so that the two retaining keys 15 are either pushed toward one another in the direction of arrows 23, thus securing the appliance against movement, or they are moved apart in opposite directions thus withdrawing the retaining keys 15 from the corresponding recesses of the appliance 5 and detaching the same for removal from the unit. Actuation of the retaining keys 15 is accomplished by means of a control bar fixed to the longer lever 19. This control bar extends through a bore 25 of the bell-crank lever 26 to which it is fixed. At the horizontal arm 27 of the lever 26, projecting horizontally from under the edge of plate 1, a release button 28 is fixed. Pressing this button will cause lever 19 to be revolved in the direction of arrow 29; thus the retaining keys 15 are withdrawn and the kitchen appliance is detached. A split spring 32 provided in an opening 31 of plate 1 acts upon the rear edge 30 of retaining keys 15. When button 28 is released, the forward push of spring 32 tends to restore both retaining keys to the openings of

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the kitchen appliance which is thus automatically secured against detaching or tossing.

At the four corners of plate 1 bars or legs 33 are fixed to the plate underside, and provided with rubber boots 34 in order to compensate for the vibrations caused by the operation of the basic unit.

On plate 1 there are also controls 57, e.g. switches, to activate and regulate the motor at various revolutions, and to switch on and adjust a timer 58, also fitted into plate 1. This timer serves to switch off automatically the power unit 5 after a preset time.

In order to keep plate 1 clear of all vibrations caused by the housing 2 of the drive member 3, it is advisable to connect the housing 2 with the suspension plate 1 by means of rubber buffers 35; these buffers being provided on both sides of a flange 36 arranged at the upper edge of the casing 2. The rubber buffers 35 are secured from below to both sides of the flange 36 by a screw 37. The screw 37 extends through a corresponding bore 38 in flange 36.

According to FIGURE 4 the upper flange 39 of the motor housing is constructed in such a way, especially thus enlarged, that the bars or legs 33 may at one and the same time serve for the connection of the housing 2 with plate 1. For this purpose the bars are extended through bores 40 in flange 39, and rubber buffers 41 are inserted. A disc or washer 42 assures that the lower buffer 41 is rigidly pressed against the motor flange 39 from underneath.

According to FIGS. 5 and 6, the motor casing 43 and the suspension plate are made of one piece so large that besides the original electric motor 8 there is left sufficient space to let the bars 33 extend downwardly from the plate, through casing 43 and to the ground. The bars 33 project only slightly beyond the base of casing 43. This might be advantageous for certain purposes. For the cooling of motor 3, that is to conduct away the heat generated by the motor, a number of vertically superposed slots 45 is provided in the wall 44 of housing 43.

To fit the basic unit 12 into a kitchen table 46, for example, a recess 47 corresponding to the outline of the housing is provided in the table and the basic unit 12 is suspended in this recess with the flange 48 of plate 1 overlying the table 49 at the edge of the recess 47.

According to FIGURE 7, the plate 50 of the basic unit 51 may be made circular, however, other features of the unit substantially correspond to the embodiment of FIG. 5. Here, also, a recess 52 is provided to an appliance 5. On plate 52 are arranged the controls 53 together with a timer 54. The housing 55 has air slots 56.

I claim:

1. A kitchen-appliance power unit, comprising a generally rectangular relatively thick rigid first plate; a plurality of relatively stiff elastic legs spaced about the periphery of said first plate; elastic boots in said legs; a generally rectangular relatively thin second plate disposed below said first plate and extending parallel therewith, said legs extending downwardly through said second plate; a substantially rectangular housing depending from said second plate; vibration-absorbing means suspending said second plate from said first plate; a motor mounted in

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said housing and having an upwardly extending drive shaft, said first plate and second plate each being provided with a respective throughgoing opening registering with one another and with said housing, said drive shaft projecting through the opening in said second plate into the opening in said first plate; locking means extending into said opening of said first plate and coplanar therewith for releasably retaining an accessory operable by said motor, and means for releasing said retaining means.

2. A kitchen-appliance power unit for built-in and free-standing use, comprising in combination a relatively rigid first plate; a second plate disposed therebelow and substantially coextensive therewith; a plurality of relatively stiff elastic supports spread about the periphery of said plates and suspending said second plate from said first plate, a housing depending from said second plate, said first and said second plates being each provided with a respective throughgoing opening, said openings registering with one another and with said housing; vibration-absorbing means suspending said housing from said second plate; a motor secured in said housing having a drive shaft projecting into said opening; spring-loaded retaining means coplanar with said first plate and extending into the said opening thereof for engaging complementary recesses of an accessory operable by said motor; release means for radially withdrawing said retaining means from said recesses; and actuating means remote from said housing and said plates for operating said release means.

3. A kitchen-appliance power unit as defined in claim 2 wherein said first plate is hollow, said retaining means comprising at least two movable spring-loaded jaws positioned inside said plate and projecting into said opening, said release means comprising two levers inside said plate each operatively connected with one of said jaws and extending transversely of the direction of movement thereof at laterally spaced positions, a pivot on each of said levers at longitudinally offset locations, coupling means joining said levers at a point intermediate the locations of said pivots, said actuating means including an actuating rod joined to the free end of one of said levers for displacing the other end thereof radially outwardly, while simultaneously displacing the free end of said second lever in a direction opposite the direction of displacement of said first lever, and a third lever aligned with said actuating rod and pivotable about an axis transverse thereto, said third lever being connected with said rod at one end and having a manually actuatable other end extending from said first plate.

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