July 29, 1930. R. HOE 1,771,629

POWER UNIT

Filed Aug. 25, 1927

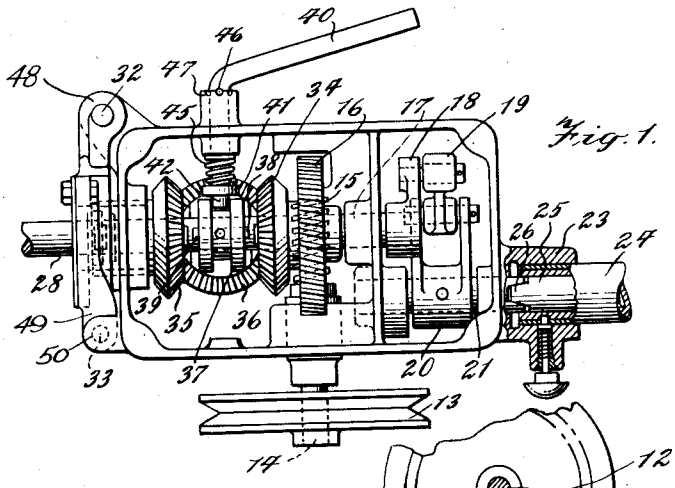


Fig. 1.

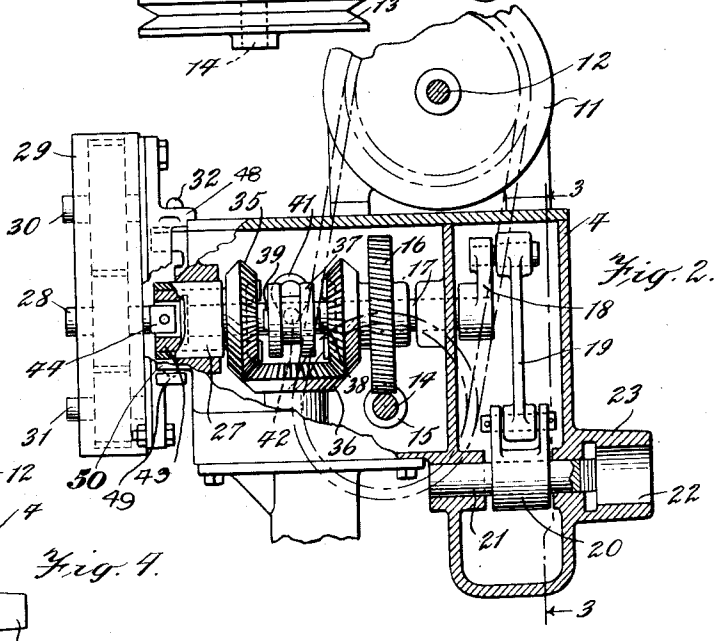


Fig. 2.

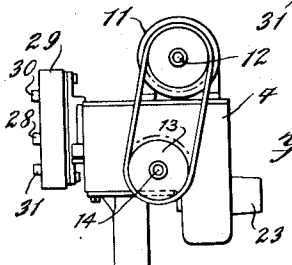


Fig. 4.

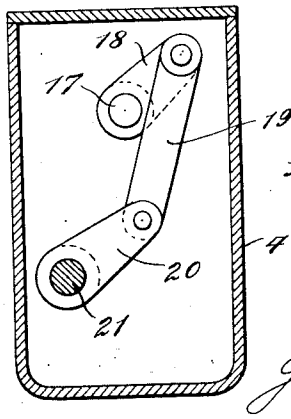


Fig. 3.

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UNITED STATES PATENT OFFICE

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POWER UNIT

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This application relates to a novel and improved power unit which may be employed for a plurality of purposes. The invention will be best understood from the following description, when taken in connection with the accompanying drawing, in which I have shown an embodiment of the invention, and in which

Fig. 1 is a horizontal sectional view through the gear casing of the invention;

Fig. 2 is a vertical sectional view through the casing shown in Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 2; and

Fig. 4 is a view on a smaller scale showing one form which the entire apparatus may take.

Referring now to the drawing in detail, I have shown my invention as comprising a suitable base 1 which forms a support for the unit. This base has mounted thereon a standard 2 upon which is slidably mounted a sleeve 3 to which is secured the casing 4. The sleeve and standard are provided with a plurality of holes 5 within which may be received a pin 6 so as to adjustably support the sleeve in any one of a plurality of positions with respect to the base. The sleeve 3 is made in two parts, one of which is rotatable with respect to the other. The lower part 7 is held against rotation with respect to the standard 2 by any suitable means such as the pin 6, and the upper part 8 is held in adjusted position on the part 7 by means of a latch 9 adapted to engage in one of a plurality of notches in a flange 10 on the part 7. The above described apparatus exemplifies means for adjusting the unit both vertically and rotatably with respect to the base upon which it is supported. The details of these means are better shown in my co-opending application for washing machine, Serial No. 138,356. It is to be understood that I consider these means as merely exemplary, as other suitable means may be employed.

Carried on the casing 4 is a suitable motor 11, the shaft 12 of which may be connected by a suitable belt to a pulley 13 upon a power shaft 14 journalled in the casing. This shaft has a worm 15 meshing with a worm gear 16, secured to a rotatable shaft 17. At one end of this shaft it is provided with a crank 18 to the end of which is pivoted a link 19 which in turn is pivoted at its other end to an arm 20 secured to a rock shaft 21. This rock shaft has an outlet from the casing which is exemplified by a bore 22 in a boss 23 on the casing. This bore is adapted to receive a sleeve 24 within which may be journalled a shaft 25 having coacting means 26 by which it may be clutched to the shaft 21.

The other end of the rotatable shaft 17 has an outlet from the casing indicated at 27, and this outlet may be used to operate a continuously rotating shaft such as that indicated at 28. This shaft 28 may be mounted in a suitable support exemplified by a gear box 29, omitted from Fig. 1, which may contain suitable gearing shown in dotted lines in Fig. 2, connecting the shaft 28 with other shafts 30 and 31. By this means there may be provided a plurality of shafts which operate from the shaft 17 and rotate at different speeds, depending upon the gearing in the box 29. The box may be hinged at 32 to the casing and may be held in position by a suitable latch 33, thus forming a detachable power transmitting unit.

The shaft 17 has loosely mounted thereon two bevelled gears 34 and 35, between which is disposed a bevelled gear 36 which meshes therewith. Splined upon the shaft 17 is a collar 37 having clutch teeth 38 and 39 which are adapted to be received in corresponding recesses in the hubs of the gears 34 and 35, respectively. The collar may be slid lengthwise of the shaft by operation of a handle 40, which is operatively connected to the collar by means of a lever 41 having a pin 42 which is received within a groove in the collar. By

this means the clutch teeth may be brought into engagement with either of the gears 34 and 35 so as to cause rotation of the gear 35 in either direction. The gear 35 is provided with an elongated hub 43 having a recess adapted to receive the end 44 of the shaft 28 whereby the shaft 17 is connected to the shaft 28 by means of the hub 43. The means just described permits the rotation of the shaft 17 to be transmitted through its outlet 27 to the shaft 28 and permits the movement to take place in either direction. The handle 40 is yieldingly held in position by means of a compression spring 45, which yieldingly holds a pin 46 in any one of a plurality of notches 47. This permits the shaft 17 to run idle or to be connected to the shaft 28 and to rotate it in either direction.

From the above it will be seen that I have devised a self-contained power unit which may be conveniently employed particularly for household purposes. One use to which the unit may be put is the operation of a washing machine and it will be obvious that many other uses will be found for the unit. For example, one of the shafts 28, 30 and 31 may be employed for the support of a buffing wheel for cleaning silver or for the support of a stone for sharpening knives. These uses are given only as examples, however, as many other uses will suggest themselves.

As plainly shown in Figs. 1 and 2, the gear box forming the power transmitting unit is mounted upon hinges in the form of pins received in ears 48 on the gear box. The gear box may then be easily placed in position on the pins and removed therefrom by a movement which is vertical in the form illustrated, and which is transverse to the length of the shafts 17 and 28. The box may be swung on the hinges into a position wherein the clutch elements 43 and 44 cooperate to operatively connect the shafts 17 and 28. When in this position, it will be noticed that movement of the box off the hinge pins is prevented by engagement of the clutch elements, these elements overlapping as plainly shown in the drawings. Movement on the hinges is also prevented by means of the latch 33, this latch comprising an ear 49 which is disposed between the ear 50 when the clutch elements are in cooperative position.

Certain structure is illustrated, described and claimed in this application which is also illustrated and described in my co-pending application Ser. No. 263,322, but I do not intend to claim herein any of the subject matter which is claimed in said co-pending application and the claims herein should be construed accordingly.

I claim:

1. In combination, a support having a driving shaft mounted thereon, a device adapted to be driven by said driving shaft and comprising a driven shaft, overlapping elements on said shafts to form a driving connection therebetween, and a hinge adapted to support said device with said shafts in operative position with respect to each other, said hinge comprising cooperating members on said support and on said device separable by a movement transverse to the length of said shafts.

2. In combination, a support having a driving shaft mounted thereon, a device adapted to be driven by said driving shaft and comprising a driven shaft in alignment therewith, overlapping clutch elements on said shafts to form a driving connection therebetween, and a hinge adapted to support said device with said shafts in operative position with respect to each other, said hinge comprising cooperating members on said support and on said device separable by a movement transverse to the length of said shafts.

3. In combination, a support having a driving shaft mounted thereon, a device adapted to be driven by said driving shaft and comprising a driven shaft, clutch elements on said shafts to form a driving connection therebetween, a hinge adapted to support said device with said shafts in operative position with respect to each other, said hinge comprising cooperating members on said support and on said device separable by movement transverse to the length of said shafts, a latch adapted to detachably hold said device with the shafts in said operative position, and adapted to prevent relative movement between said hinge members when said shafts are in said operative position.

4. In combination, a power unit having a driving shaft, a device adapted to be operated by said power unit and comprising a driven shaft, coacting clutch elements on said shafts, a hinge connecting said device to said unit and comprising two members, a hinge pin and a member coacting therewith and brought into engagement with the pin by movement lengthwise thereof, and means preventing movement of said hinge members with respect to each other when said clutch elements are brought into cooperative relationship.

5. In combination, a power unit having a horizontally disposed driving shaft, a device adapted to be operated by said power unit and comprising a horizontally disposed driven shaft, a hinge connecting said device to said unit and comprising cooperating members on the unit and on the device separable by vertical movement of the device with respect to the unit, coacting clutch elements on said shafts and adapted to be brought into cooperative relation to each other with said shafts in alinement when said device is swung on said hinge, and cooperating elements on the unit and device preventing ver-

tical movement of the device on its hinge when said shafts are in operative position.

6. In combination, a power unit having a driving shaft, a device adapted to be operated by said power unit and comprising a driven shaft, a hinge connecting said device to said unit, a clutch to connect said shafts comprising elements on each shaft, and means to so position said device with respect to the unit, as to render said clutch operative.

ROBERT HOE.