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1,681,267

R. G. THOMPSON

POWER MECHANISM

Filed Sept. 29, 1924

Fig. 1

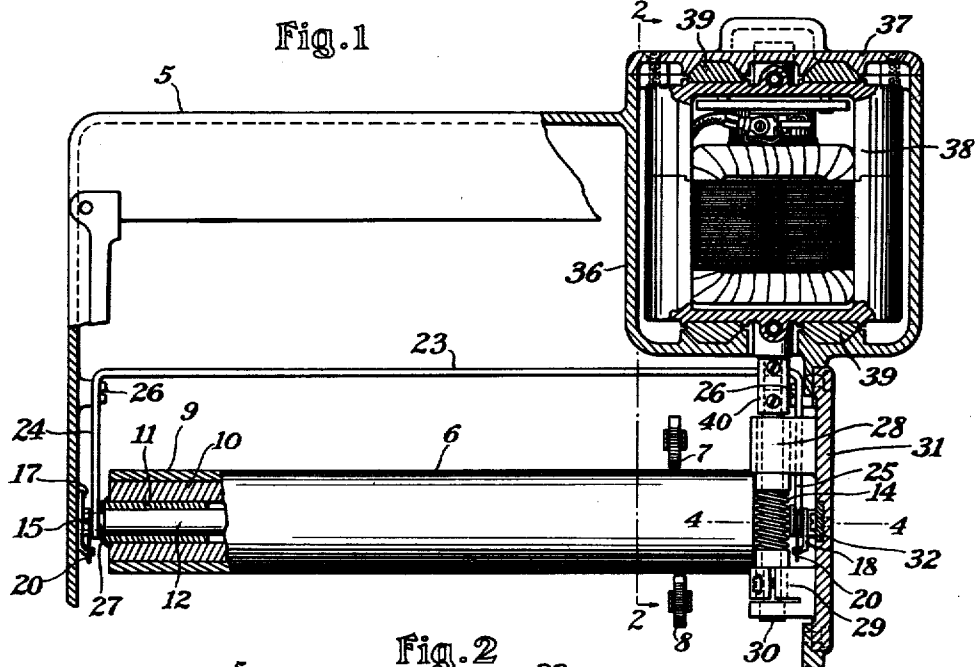


Fig. 2

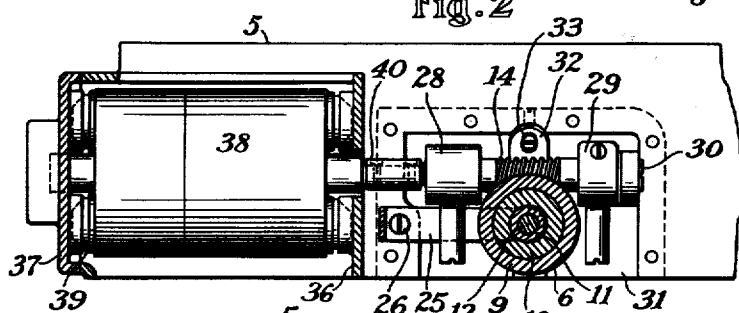


Fig. 3

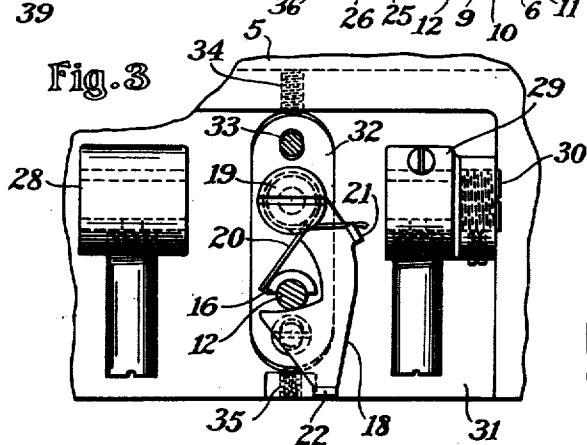
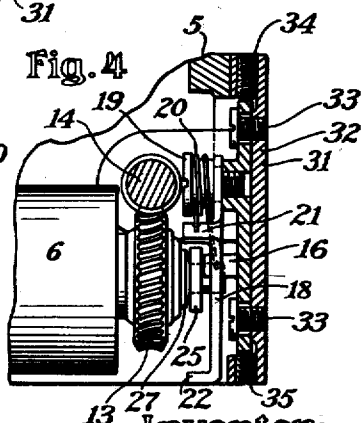


Fig. 4



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## UNITED STATES PATENT OFFICE.

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## POWER MECHANISM.

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This invention relates to power mechanism of a kind suitable for use in operating a typewriter or similar machine. Power mechanism for this purpose has been proposed in which the type-bars, and other parts to be actuated, are connected with a series of cam-mechanisms arranged to co-operate with a constantly rotated power-roller. The power-roller is journaled transversely in the frame of the machine near the bottom, and is driven by an electric motor attached to the frame.

One object of the present invention is to provide simple and convenient means for mounting the power-roller in such a manner that it may be readily moved into or out of operative position with respect to the cams. Another object of the invention is to mount the power-roller and its actuating mechanism entirely within the box-like frame or sub-frame of the machine, and to provide a simple and compact arrangement for housing the motor, and mounting it in a readily removable manner, and for minimizing the transmission of vibration from the motor to the frame of the machine. Another object of the invention is to provide simple and effective means for supporting a worm-shaft through which the roller is driven, and for relatively adjusting the worm and the co-operating worm-gear, to secure correct meshing between these parts.

Other objects of the invention, and the features of construction and arrangement by which these several objects are attained, will be set forth hereinafter in connection with the description of the illustrated embodiment of the invention.

In the accompanying drawings, Fig. 1 is a plan-view, partly in section, of power mechanism embodying the present invention. Fig. 2 is a section on the line 2—2 in Fig. 1. Fig. 3 is a detail view, on a larger scale than the preceding figures, of certain parts shown in Fig. 2; and Fig. 4 is a section on the line 4—4 in Fig. 1 but on a larger scale.

The invention is illustrated as embodied

in a machine having, at its base-portion, a generally horizontal box-like frame 5, comprising vertical side-members and a rear-member. This frame may be either an independent sub-frame or the lower portion of the frame of the typewriter proper. The power-roller 6 co-operates with cams which may be located in two series in front and in the rear of the roller. A single rear-cam and front-cam, 7 and 8 respectively, are shown in Fig. 1, but no further illustration or description of the cams and their mechanism is given as they constitute, in themselves, no part of the present invention. The power-roller is shown as provided with a coating 9 of suitable frictional material, enveloping a cylindrical body 10. At its ends the body has bearing-bushings 11, which turn freely upon a stationary shaft 12. At one end of the roller a worm-gear 13 is fixed, which meshes with a worm 14 mounted above it. The shaft 12 is seated, at its ends, in stationary half-bearings 15 and 16 which, as shown in Fig. 3, are downwardly open so that the shaft may be introduced into them from beneath. The shaft is held in these bearings by two hook-like latches 18, pivoted upon screws 19. Each latch is controlled by a spring 20 engaging a lug 21 on the latch. The latch has a cam-like edge which bears against the end of the shaft 12, from beneath, and tends to press it securely into the half-bearing when the latch is swung into operative position by its spring. A lug 22 at the lower-end of the latch serves as a handle by which it may be swung out of engagement with the shaft, whereupon the shaft may be dropped out of the bearings and the roller may thus be removed from between the cams, so as to afford access to the cam-mechanisms or for the purpose of repair or replacement of the roller itself. It will be apparent that since the worm is located above the worm-gear, these parts are automatically engaged and disengaged when the roller is introduced or removed in the manner just described, and that once this engagement has been properly

adjusted, it will be resumed no matter how often the roller may be removed and replaced.

When the power-roller is to be removed only temporarily, as in adjusting or lubricating the machine, it is desirable that it be retained on and supported by the machine, and for this purpose it is carried by a yoke consisting of a resilient strip of sheet-metal bent to U shape so as to comprise a transverse member 23 and two parallel short arms 24 and 25. This yoke is pivoted on screws 26 at the sides of the frame, and the ends of the arms are perforated to receive the ends of the shaft 12. The shaft may be introduced upon springing the arms apart, and the arms rest against thrust-collars 27 near the ends of the shaft and are interposed between these collars and the half-bearings 15 and 16. When it is necessary to remove the roller entirely from the machine this can readily be done by springing the arms out of engagement with the ends of the shaft. The yoke permits the roller to swing down and away from the cams, but retains it ready to be swung back into place.

The worm 14 is cut upon a shaft which turns in two bearing-lugs 28 and 29. The latter is provided with an adjustable thrust-bearing 30. For convenience in constructing and assembling the parts including the worm-bearings, the bearing-lugs are made integral with a plate 31 which constitutes a removable closure for an opening in the right-hand side-member of the frame 5. The plate is normally fixed in place by screws or other rigid means.

In a machine of the kind in question, it is important that as little noise as possible be produced by the mechanism which causes the constant rotation of the power-roller, and accordingly a precise adjustment of the meshing between the worm and the worm-wheel is desirable. Since the worm must be connected with a motor mounted on the frame, it is most convenient to accomplish this adjustment by a slight vertical movement of the worm-wheel, and accordingly means are provided for adjusting the adjacent end of the shaft 12. For this purpose the half-bearing 16 and the latch-supporting screw 19 are mounted on a slide-plate 32 which is guided in an elongated recess in the bearing-plate 31 and normally fixed against movement by clamp-screws 33, engaging elongated perforations in the slide-plate. Thrust-screws 34 and 35, threaded in the bearing-plate 31, engage the ends of the slide-plate, and when adjustment is necessary it may be accomplished by these thrust-screws, after the screws 33 have been loosened sufficiently to permit the slide-plate to move. Since the latch 18 is pivoted upon the slide-plate, it preserves the proper relation with the half-bearing 16 regardless of

such adjustment. The vertical adjustment produced by the means just described is so slight in extent that it does not cause the power-roller to depart substantially from a horizontal position, and consequently no corresponding adjustment of the left-hand end of the roller is necessary.

Since the worm 14 is located within the sides of the frame 5, it may be connected directly with an electric motor, and the latter may still be contained largely within the rectangular space circumscribed by the frame. In the present construction a box-like housing 36 is provided for the motor, at one rear corner of the frame, this housing being integral with the frame and being open in the rear. The motor may thus be introduced by an axial movement through the rear of the housing, and the housing is then closed by a plate 37 secured in place by screws.

A certain amount of vibration is necessarily produced by the motor, and if this vibration be transmitted to the frame of the machine more or less noise will be caused. In order to insulate such vibration from the frame, and at the same time to support the motor firmly in operative position, the ends of the motor-frame 38 are provided with recesses in which plugs 39 of some material more yielding than metal are fixed. These plugs may be made of cork or other elastic or sound-insulating material. The plugs 39 are outwardly tapered or conical in form, and they engage corresponding sockets in the front of the motor-housing and in the removable plate 37. The parts are so proportioned that when the plate is screwed in place the plugs are subjected to sufficient compression to hold the motor firmly in place. By using four plugs at each end, as shown, located symmetrically about the axis of the motor, the motor is also prevented from turning about the axis. The motor is thus supported without any metal-to-metal engagement between it and the housing or frame of the machine. To correct such slight mis-alignment as may occur between the motor and the worm-shaft, a suitable flexible coupling 40 may be interposed.

The invention claimed is:

1. Power mechanism comprising: a frame having side-members; a horizontal rotary power-member journaled transversely between said side-members; a horizontal power-shaft geared to one end of said power-member and journaled on and within one of the side-members; an electric motor yieldingly mounted within and upon the frame, in axial alinement with said power-shaft; and means, including a yielding coupling, for connecting the motor-shaft with the power-shaft.

2. Power mechanism comprising: a generally horizontal box-like frame; a transverse

horizontal power-member journaled between the sides of the frame and provided, at one end, with a gear-wheel; a motor-housing located at one corner of the frame and opening on the side remote from the power-member; a plate for closing said open side; an electric motor enclosed with the housing; and a shaft geared to said gear-wheel on the power-member and driven by said motor; the motor, the housing and the plate being provided with yielding motor-supporting members caused to interengage when the plate is secured in place. 10

RUSSELL G. THOMPSON.

#### CERTIFICATE OF CORRECTION.

Patent No. 1,681,267.

Granted August 21, 1928, to

RUSSELL G. THOMPSON.

It is hereby certified that the State of Incorporation of the assignee in the above numbered patent was erroneously given as "Illinois", whereas said State should have been given as "New York", as shown by the records of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22nd day of January, A. D. 1929.

(Seal)

M. J. Moore,  
Acting Commissioner of Patents.

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