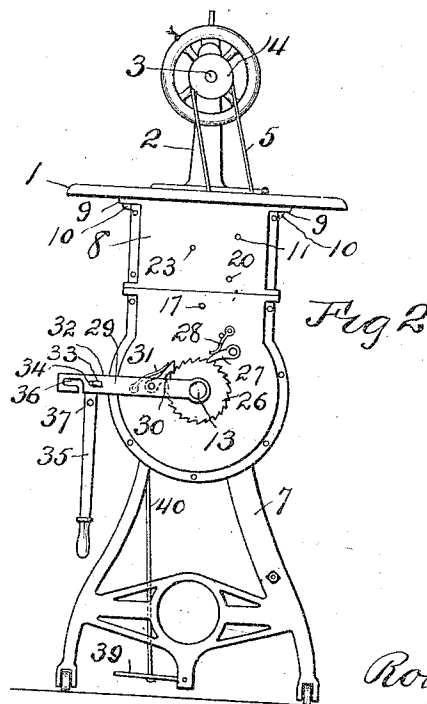
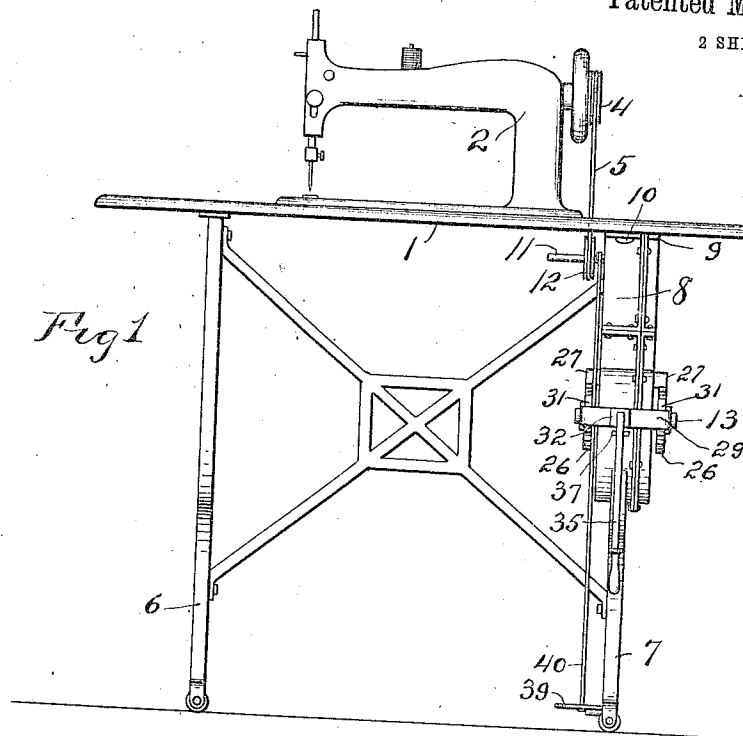


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2 SHEETS--SHEET 1.



WITNESSES:

R. Hamilton
C. B. House

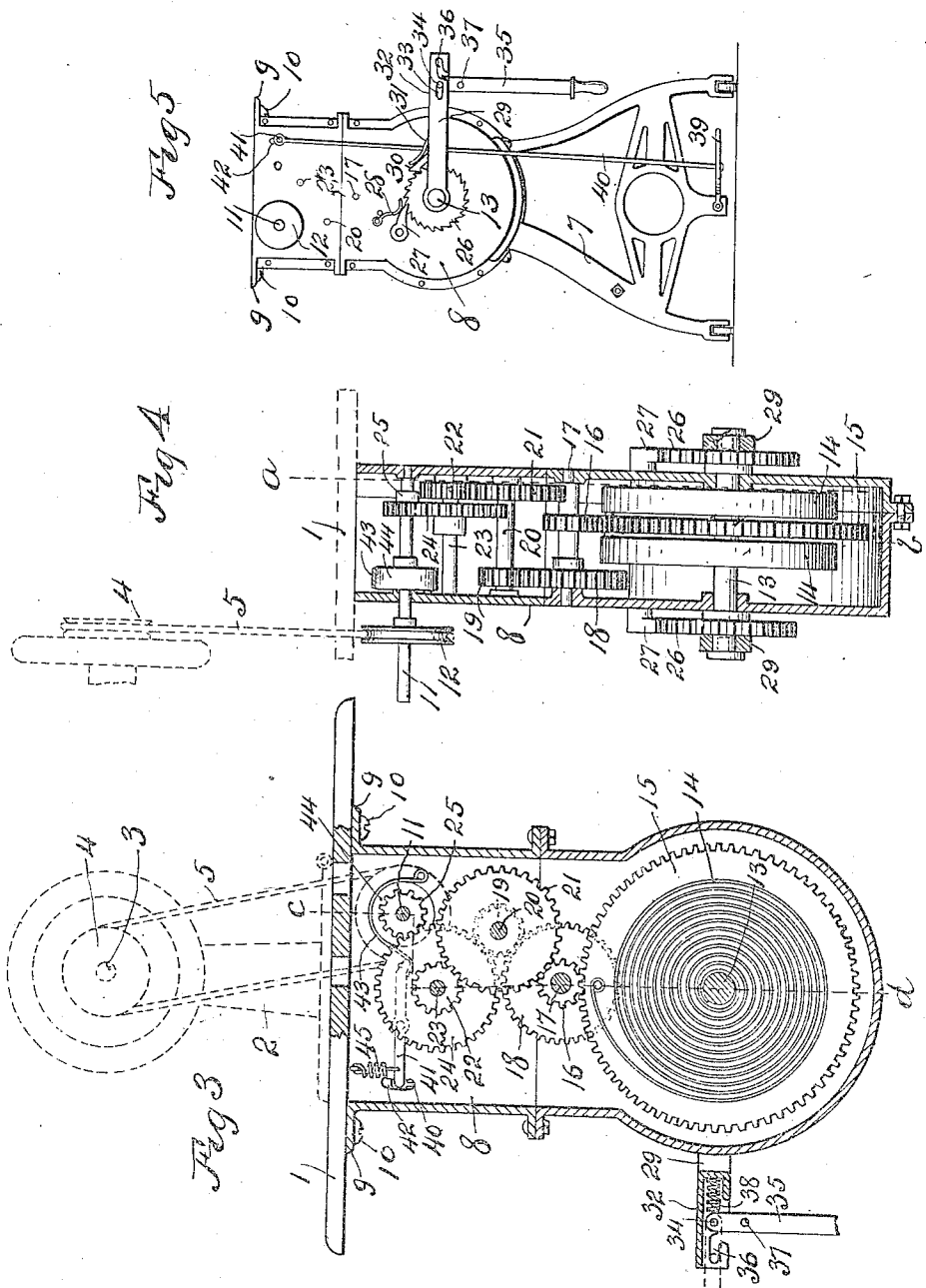
Robert F. Howard INVENTOR.
BY
Warren D. House,
His ATTORNEY.

R. F. HOWARD.
SEWING MACHINE MOTOR MECHANISM.
APPLICATION FILED JAN. 4, 1909.

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Patented Mar. 28, 1911.

2 SHEETS—SHEET 2.



WITNESSES:
W. Hamilton
E. B. House

Robert F. Howard, INVENTOR.
BY
Warren D. House, ATTORNEY.

UNITED STATES PATENT OFFICE.

ROBERT F. HOWARD, OF KANSAS CITY, KANSAS.

SEWING-MACHINE MOTOR MECHANISM.

987,804.

Specification of Letters Patent.

Patented Mar. 28, 1911.

Application filed January 4, 1909. Serial No. 470,669.

To all whom it may concern:

Be it known that I, ROBERT F. HOWARD, a citizen of the United States, residing at Kansas City, in the county of Wyandotte and State of Kansas, have invented a certain new and useful Improvement in Sewing-Machine Motor Mechanisms, of which the following is a specification.

My invention relates to improvements in sewing machines.

It relates particularly to sewing machine motor mechanisms.

The object of my invention is to provide a motor mechanism for sewing machines which will permit the head of the sewing machine to be swung to and from its normal position without liability of disarrangement of or damage to the motor mechanism.

A further object of my invention is to provide a construction in which the motor mechanism for operating the sewing machine may be readily applied to the ordinary machines already on the market. To accomplish this object the preferred construction embodies a leg, adapted to replace one of the legs with which the sewing machine is provided, and a motor mechanism carried by the leg, the leg and motor mechanism comprising a self contained mechanism attachable to and detachable from the table of a sewing machine as a unit. By means of such a construction the self contained mechanism may be manufactured as a unitary structure, which may be sold separately from the sewing machines and applied to any of the ordinary types of sewing machines, already in use, by substituting the unitary structure for one of the legs of a machine.

In the preferred form of my invention, the unitary structure embodies a belt wheel adapted to receive thereon the ordinary belt that is used to drive manually driven sewing machines of a common type.

Other novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawings illustrating a preferred form of my invention provided with spring motor mechanism, Figure 1 is a front elevation of a sewing machine provided with my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a vertical sectional view, enlarged, taken on the dotted line *a-b* of Fig. 4, of the motor mechanism attached to the leg, a portion of which is shown attached to a sewing machine table, which is partly broken away. Fig. 4 is a

vertical sectional view taken on the dotted line *c-d* of Fig. 3. Fig. 5 is an end elevation of the mechanism shown in Fig. 2 looking at the opposite end from that shown in Fig. 2, the table and parts supported thereby being omitted.

Similar characters of reference denote similar parts.

1 denotes the table of an ordinary sewing machine, 2 the head supported thereby, 3 the shaft rotatively mounted in the head and having attached thereto the ordinary peripherally grooved pulley 4 having mounted thereon the belt 5 commonly employed for driving such machines.

6 denotes the ordinary leg of the machine the corresponding leg at the other end of the machine being removed and my attachment substituted therefor.

I will now describe the unitary structure which is substituted for one of the sewing machine legs.

Preferably the leg comprises a foot portion 7 having secured to its upper end a casing portion 8 adapted to contain the motor mechanism. The upper end of the casing portion 8 is provided with horizontal outwardly extending flanges 9 which are secured to the under side of the table 1 in any desired manner as by screws 10. The casing may be of any desired construction best adapted to the motor mechanism to be employed. It is preferably detachably connected with the foot portion, so that a foot portion of any desired height may be secured to it.

11 denotes a horizontal driving shaft extending through and rotatively mounted in opposite walls of the casing portion 8, and having mounted on it outside the casing portion 8 a peripherally grooved pulley 12 adapted to receive thereon and drive the belt 5.

A shaft 13 disposed below and parallel with the shaft 11 extends through and is rotatively mounted in opposite walls of the casing portion 8. One or more springs 14, preferably of the convolute type, are secured at one set of ends to the shaft 13, the other set of ends being secured to a spur gear wheel 15 rotatively mounted on the shaft 13 within the casing portion 8. The gear 15 meshes with a pinion 16 secured on a horizontal shaft 17 rotatively supported in opposite walls of the casing portion 8 and having secured to it a spur gear wheel 18 which

meshes with a pinion 19 secured to a horizontal shaft 20 rotatively supported by opposite walls of the casing portion 8. On the shaft 20 is secured a spur gear wheel 21 which meshes with a pinion 22 secured on a horizontal shaft 23 rotatively supported by opposite walls of the casing portion 8 and having secured to it a spur gear wheel 24 which meshes with a pinion 25 secured on the shaft 11.

To rotate the shaft 13 so as to wind the springs 14, said shaft has secured upon it adjacent to opposite ends and at opposite sides respectively of the casing portion 8, outside said casing portion, two ratchet wheels 26 which are engaged respectively by two pawls 27 pivoted to the casing portion 8 at opposite ends thereof, said pawls being preferably normally held engaged with the ratchet wheels 26 by two springs 28 secured to the casing portion 8 and respectively bearing on the said pawls. The pawls 27 are disposed so as to prevent backward rotation of the shaft 13 after the springs 14 have been wound.

To wind the springs the following described mechanism is preferably employed. A U shaped lever 29 has its arms pivoted on the shaft 13. Respectively pivoted to the two parallel arms of the lever 29 are two pawls 30 respectively engaging the ratchet wheels 26 with which the pawls are held in engagement by two springs 31 secured respectively to the parallel arms of the lever 29 and bearing respectively upon the pawls 30. To swing the lever 29, it is provided centrally with a forwardly extending projection 32 of inverted channel form and having in opposite vertical walls two longitudinal slots 33 in which are respectively mounted opposite ends of a horizontal pin 34 secured transversely in the upper end of a lever 35 and upon which the lever 35 swings. The said vertical walls of the projection 32 are also provided respectively with longitudinal slots 36, which at their rear ends extend downwardly to the lower edges of said walls so as to receive therein the pin 37 extending transversely through the lever 35, below the pin 34, when the lever hangs vertically as shown in Figs. 2 and 5. A coil compression spring 38 is mounted in the projection 32 and at its forward end bears against the lever 35. By forcing the lever 35 rearwardly thereby compressing the spring 38, the lever may be swung to the horizontal position, the pin 37 entering the slots 36 in which it is held by pressure of the spring 38 which forces the pin 37 and lever 35 forward. The lever 35 is thus releasably held in a horizontal position by the pin 37 being at the forward ends of the slots 36. By now swinging the lever 35 vertically, the lever 29 may be swung, thereby winding the springs 14 through the inter-

mediacy of the shaft 13, ratchet wheels 26 and pawls 30. After the springs are wound, the lever 35 is forced rearwardly so that the pin 37 will pass out of the slots 36, at which time the lever is swung downwardly to the vertical position shown in solid lines in Fig. 3, in which position it is not in the way of the operator of the sewing machine.

To control the running of the motor, any suitable means may be provided. In the drawings is illustrated a construction in which a pedal 39 is pivoted to the foot portion 7 of the leg. To the pedal is secured the lower end of a rod 40 the upper end of which is pivoted to a horizontal lever 41 pivoted inside the casing portion 8 to one of the walls thereof which is provided with a vertical slot 42 through which extends the lever 41. To the lever 41 at the rear of its pivotal point is secured the forward end of a strap 43, the rear end of which is secured to one of the vertical walls of the casing portion 8.

Secured rigidly on the shaft 11, within the casing portion 8 is a wheel 44 upon the periphery of which the strap 43 is adapted to bear when the lever 41 is raised at its forward end. The function of the strap 43 is to prevent by its pressure the rotation of the shaft 11, thus affording a means for holding the motor from running when it is so desired. To normally swing the lever 41 so that the strap 43 shall bear upon the wheel 44, a coil spring 45 has its lower end secured to the lever 41 forward of the pivotal point of the lever, the other end of the spring being secured to the casing portion 8 above the lever 41.

By depressing the pedal 39, the lever 41 is swung against the pressure of the spring 45 so as to release the wheel 44 from the strap 43, upon which, if the springs 14 are wound, the motor will run so as to rotate the shaft 11, thereby driving the belt 5, pulley 4 and shaft 3 of the sewing machine. To stop the running of the sewing machine, it is but necessary to remove the pressure from the pedal 39, when the spring 45 will swing the lever 41 to press the strap 43 against the wheel 44, thereby stopping the motor and sewing machine.

In attaching my attachment to an ordinary sewing machine, it is but necessary to remove one of the legs of the machine and substitute in its place the attachment. The belt 5 may then be fitted to the two pulleys 4 and 12, and the machine will then be ready to be run by the motor.

By reason of all the mechanism of the motor being located below the table 1 and connected with the sewing machine pulley 4 by the belt 5, the belt may be quickly thrown off one of the pulleys and the head 2 swung from its normal position, for any desired reason, without danger of the motor

being released so as to suddenly run down. Furthermore, as the connection between the sewing machine running parts and the running parts of the motor is made by a belt instead of by gear wheels, there is no liability of the gear wheels getting out of proper mesh with each other when the head is swung to and fro.

My invention may be modified in many ways, within the scope of the appended claims, without departing from its spirit.

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

1. In a sewing machine motor, the combination with a casing adapted to be secured to and support the table of a sewing machine, of a shaft rotatively mounted in and having its ends extending through opposite sides of the casing, two ratchet wheels secured to and rotative with the shaft at opposite sides of the casing, a lever having at one end two arms pivoted to said shaft at opposite sides respectively of said casing, the other end being channel form, the opposite sides of the channel having two slots, said channel sides having forward of said slots two slots the rear ends of which extend through the edges of the channel sides, an operating bar having a transverse pin located in said first named slots and having also a transverse pin adapted to enter and move forward in said second named slots when the bar is swung to the proper position, a spring for forcing the bar forward,

two pawls pivoted to the respective arms of the lever and respectively engaging said ratchet wheels, and two pawls pivoted respectively to opposite sides of the casing and respectively engaging said ratchet wheels for preventing retrograde rotation of the shaft.

2. In a sewing machine motor, the combination with a casing, of a shaft rotatively mounted in said casing and having an end projecting through the casing, a lever pivoted to the projecting end of the shaft and having a slot and a longitudinal slot forward of the first named slot and having its rear end extending laterally to the edge of the lever, an operating bar having two transversely projecting pins, one pin being located in and movable longitudinally in said first named slot, the other pin being located so as to enter the second named slot when the bar is swung to the proper position, a spring carried by the lever for moving the bar forwardly, a ratchet wheel secured to and rotative with said shaft, a pawl carried by the lever and engaging said ratchet wheel, and a second pawl pivoted to the casing and engaging said ratchet wheel to prevent retrograde rotation of the shaft.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

ROBERT F. HOWARD.

Witnesses:

E. B. HOUSE,
W. V. DOWNEY.