W. LENHART.

DEVICE FOR OPERATING MOTORS FOR SEWING MACHINES AND THE LIKE.

APPLICATION FILED DEC. 31, 1909.

957,223. Patented May 10, 1910.

2 SHEETS—SHEET 1.

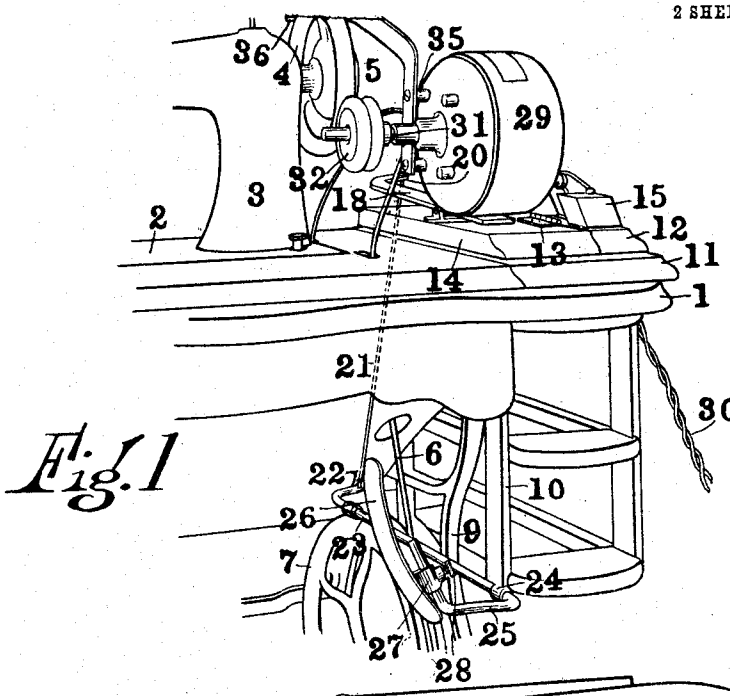

Fig. 1

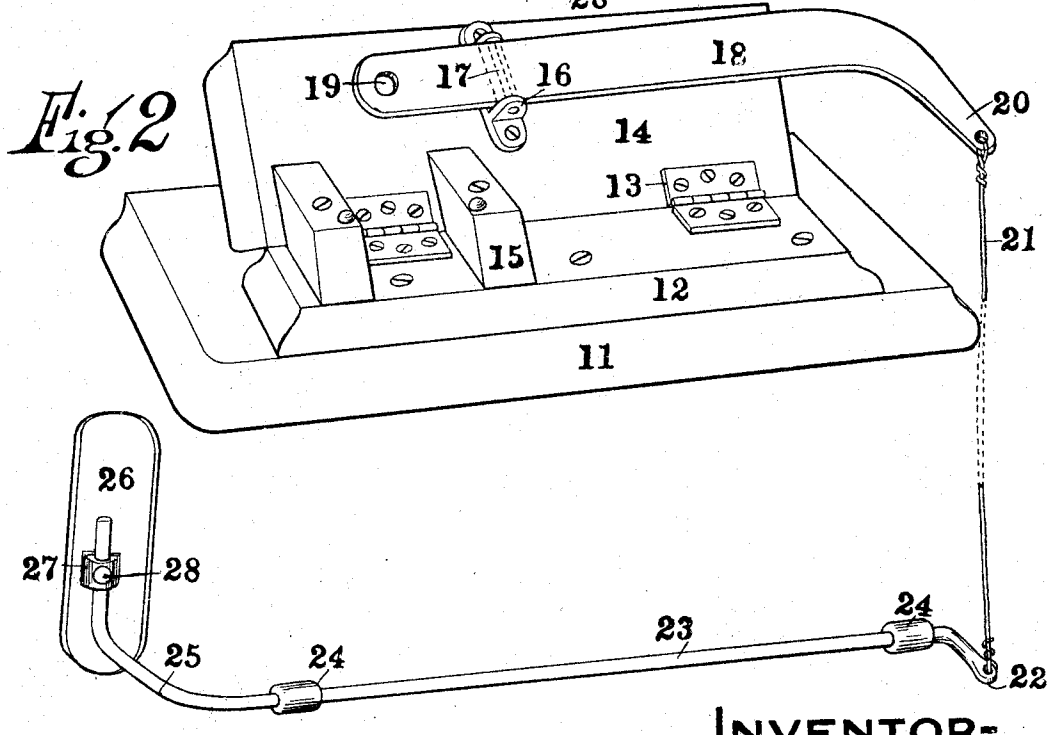

Fig. 2

Witnesses:

Austin B. Hauscom

Glenara Fox

INVENTOR-

William Lenhart,

By C. E. Humphrey

ATTORNEY.

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

W. LENHART.

DEVICE FOR OPERATING MOTORS FOR SEWING MACHINES AND THE LIKE.

APPLICATION FILED DEC. 31, 1909.

957,223. Patented May 10, 1910.

2 SHEETS—SHEET 2.

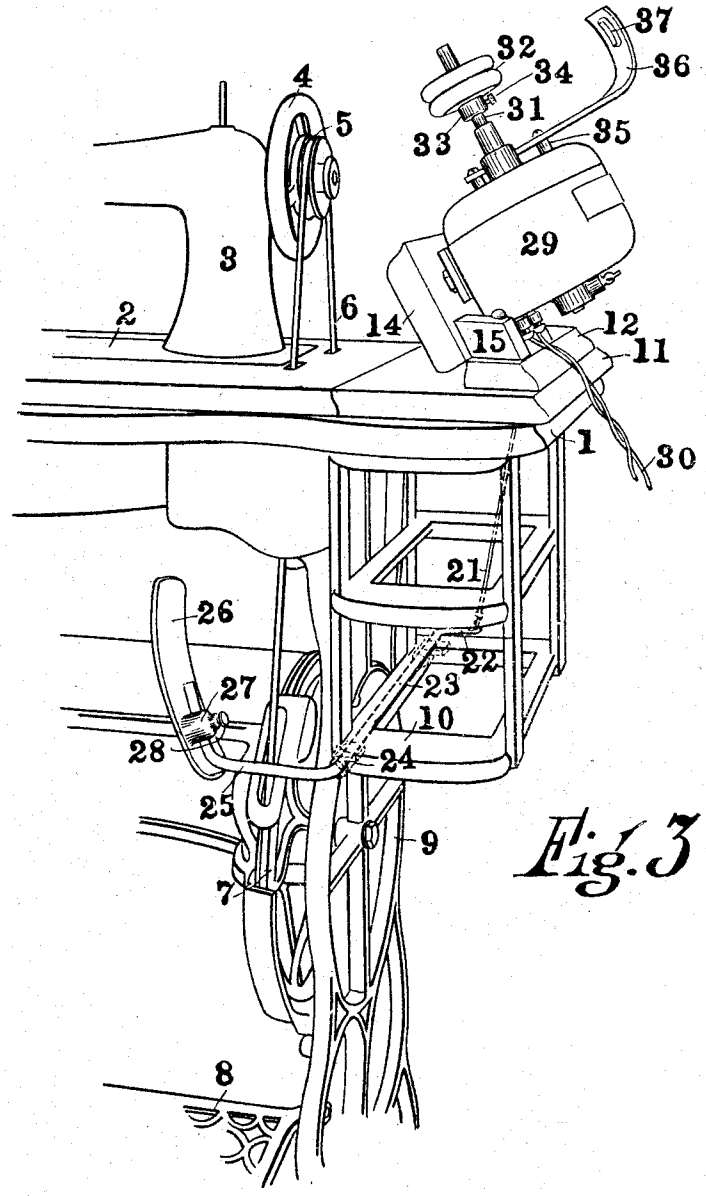

Fig. 3

Witnesses:

Austin B. Hauscom

Glenara Fof

INVENTOR-

William Lenhart,

By C. E. Humphrey

ATTORNEY.

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM LENHART, OF CUYAHOGA FALLS, OHIO.

DEVICE FOR OPERATING MOTORS FOR SEWING-MACHINES AND THE LIKE.

957,223. Specification of Letters Patent. Patented May 10, 1910.

Application filed December 31, 1909. Serial No. 535,854.

To all whom it may concern:

Be it known that I, WILLIAM LENHART, a citizen of the United States, residing at Cuyahoga Falls, in the county of Summit and State of Ohio, have invented new and useful Improvements in Devices for Operating Motors for Sewing-Machines and the Like, of which the following is a specification.

This invention relates to mechanism for supporting, operating and controlling motors used to operate light machinery, involving a driven wheel, such as a sewing machine, and the object of the invention is to support a motor provided with a friction wheel adapted to be thrown into and out of engaging relation with the driven wheel of the machinery, said mechanism provided with a brake adapted to be thrown into braking engagement with said driven wheel when said motor is out of engagement therewith and to be free from said wheel when the same is driven by said motor.

The invention especially contemplates providing a suitable support for a motor arranged to be positioned upon a suitable part, preferably the table of a sewing machine, said motor provided with a brake arranged to engage the driven wheel of the sewing machine alternately with respect to said motor, said support so provided that the motor and brake may be swung away from the driven wheel of the sewing machine, to the end that the same may be operated by the conventional foot-treadle through the medium of a belt in the ordinary manner, neither the motor nor the treadle interfering with the perfect operation of the other, but each capable of being used independently of the other.

The invention further contemplates positioning a motor on an oscillating lever so that when the same is tilted in one direction it will throw a friction wheel carried by the motor shaft into engagement with the driven wheel of a sewing machine and adapted to be returned to its inoperative position by its own weight and simultaneously therewith cause the engagement of a brake carried by the motor for arresting revolution of the wheel.

The invention further contemplates that the oscillation of the lever to throw the brake and motor alternately into operative position may be controlled by an arm, preferably arranged to be operated by the knee of the user of the device so as not to interfere in any way with the use of the feet in operating the treadle of the machine when using the same in the ordinary manner.

A still further object of the invention is to connect the oscillating lever on which the motor is supported, with the arm by which the lever is oscillated to bring the motor and brake alternately into operative position with respect to the driven wheel of a machine, in such a manner that when the lever and its supporting medium are swung to one side to permit of the use of the sewing machine in the ordinary manner, the tension on the connection will be maintained substantially equally at all times, thereby permitting the free swinging of the motor and its support away from the driven wheel without interfering in any way with its return to operative position and perfect usefulness.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of parts constituting the invention to be hereinafter specifically described and illustrated in the accompanying drawings which form a part hereof wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings in which similar reference numerals indicate like parts in the different figures: Figure 1 is a perspective view of my improved device in operative relation with respect to the driven wheel of a sewing machine, the sewing machine being shown in dotted lines to better illustrate the application of this device. Fig. 2 is a perspective view of the supporting means for the motor; and, Fig. 3 is a view similar to Fig. 1 showing the device in its inoperative position.

It will be stated that the description of this device applies to its employment in connection with a sewing machine as being the best means for illustrating the use of the same, but the device may be used with equal efficacy on any other light machinery which embodies a driven wheel as one of its elements.

Referring to the drawings in detail, the reference numeral 1 denotes the table of a sewing machine of the drop-head type pro-

vided with an opening 2 through which the head 3 is permitted to descend under control of mechanism of the conventional type. The head 3 of the machine is provided with the customary driven wheel 4 having a grooved pulley 5 to receive a belt 6 driven by a driving wheel 7 operated by an oscillating treadle 8. The table 1 is supported by the ordinary framework 9 which constitutes a support for the axle of the driving wheel 7 and also supports a laterally-extending frame 10 provided with openings to receive drawers (not shown).

The preferred construction for the supporting element of the device comprises a base 11 usually secured to the upper surface of the table 1 and on which is mounted a member 12 to which is pivotally-connected by means of hinges 13 a supporting member 14. Mounted on the member 12 are a pair of abutments 15 having the faces which are adjacent to the member 14 slightly inclined and arranged to constitute stops or abutments for limiting the pivotal movement of the latter. Mounted on the member 14 is a standard, preferably embodying a pair of upwardly-extending ears 16 extending between which is a pin 17. The support for the motor comprises a lever 18 preferably provided with an enlarged portion having an aperture to receive the pin 17 and adapted to pivot thereon. This lever 18 is provided at one end with an aperture 19 designed to receive a connecting means for a motor. The opposite end of the lever 18 is provided with a horizontally-turned end 20 having means near its terminus to receive a cord, chain or wire rope 21 which depends therefrom. The opposite end of the wire rope 21 is connected to a crank-shaped end 22 of a rock shaft 23 preferably mounted rotatably in bearings 24 secured to a part of the lateral frame 10. The opposite end of the rock shaft 23 is provided with an operating arm 25 having a pad 26 provided on its rear face with a lug 27 having an aperture to receive the end of the operating arm 25 and detachably secured thereto through the medium of a set screw 28.

Mounted on the free end of the lever 18 is a motor 29 preferably arranged to be operated by an electric current conveyed thereto by current-conducting wires 30. This motor is provided with an armature shaft 31 which bears a friction wheel 32 provided with a hub 33 fastened in a desired position on the shaft 31 by means of a set screw 34 to permit longitudinal adjustment of the friction wheel 32 with respect to the armature shaft. The motor 29 is also preferably provided with a pair of lugs 35 to which is secured by means of holdfast devices an arm 36 the outer end of which is preferably laterally-curved to constitute a braking member and with a pad 37 constituting a brake shoe.

In operation the base 11 is preferably secured on the upper face of the table 1 in such a position with respect to the driven wheel 4 that the friction wheel 32 will be substantially in alinement therewith and so close thereto that when the motor is rocked by the lever 18 the friction wheel 32 will be forced into engaging relation with the periphery of the driven wheel 4 to cause simultaneous rotation of the latter.

The position of the laterally-curved end of the braking member 36 will be such that when the motor is oscillated so as to separate the friction wheel 32 from the driven wheel 4 it will frictionally-engage the driven wheel and prevent further rotation thereof; that is to say, either the friction wheel or braking member will alternately engage the driven wheel to cause either a rotation or a cessation of the movement thereof alternately.

The motor and braking members are thrown alternately into and out of engagement with respect to the driven wheel by means of the rock shaft 23 the outer end of which is provided with a pad 26 so positioned with respect to the frame of the machine that it can be easily reached by the knee of the user of the machine.

When desired to start the operation of the sewing machine the operator presses his or her knee against the pad 26 causing partial rotation of the rock shaft 23 which swings the crank 22 downwardly, causing a corresponding oscillation of the lever 18, thereby bringing the friction wheel 32 into engaging relation with the driven wheel 4.

When desired to stop the operation of the sewing machine the operator releases the pressure on the pad 26 and the weight of the motor causes a reverse oscillation of the lever 18, thereby withdrawing the friction wheel 32 from contact with the driven wheel 4 and simultaneously forces the braking member 36 into operative relation with respect thereto.

If desired at any time to use the sewing machine in the conventional manner without employing the motor, the pivoted supporting member 14 may be tilted up as shown in Fig. 3 without stopping the rotation of the motor and the driven wheel 4 may be rotated through the medium of the belt 6 and treadle 8 in the ordinary manner.

It will also be apparent that by throwing the motor into the position in Fig. 3 the drop-head now employed on certain types of machines may be lowered and the cover placed over the machine without interfering with this device which is thrown entirely out of reach of the descending cover.

It will be particularly pointed out that the motor by reason of its weight and being mounted upon a pivoted lever will normally throw itself out of engagement with the driven wheel upon a release of pressure on

the pad 26 and that the only effort necessary on the part of the user of the device to set the sewing machine in motion is to move the pad, preferably by the use of the knee to the right, which oscillates the lever 18 bringing the motor into operative engagement with the driven wheel 4 and simultaneously releases the braking mechanism therefrom.

Experience has demonstrated that in using substantially the elements embodied in this device it is frequently necessary to change them slightly or modify them to a certain extent in order to adapt them to different types of sewing machines, in view of the fact that nearly all makes of sewing machines differ from each other in some minor detail with reference to the style of the table, the size thereof and the position of the head of the sewing machine carried thereby, and in view of such circumstances the supporting medium for the device must necessarily be varied to accommodate it to the peculiar type of sewing machine with which it is to be employed; however, this invention is not limited to the precise details of construction so long as the general features of construction shown herein are substantially adhered to.

I claim:

1. A device of the class described comprising a supporting medium arranged to be positioned adjacent to a driven wheel, a pivoted lever arranged for vertical oscillation mounted on said support, a motor mounted on said lever, a friction wheel on the shaft of said motor arranged when said motor is oscillated in one plane to be thrown into and withdrawn from operative engagement with said wheel and a braking member arranged to be moved into and out of operative engagement with said wheel alternately with respect to the engagement of said friction wheel therewith.

2. A device of the class described comprising a hinged supporting medium arranged to be positioned adjacent to a driven wheel, a pivoted lever arranged for vertical oscillation mounted on said support, a motor mounted on said lever, a friction wheel on the shaft of said motor arranged when said motor is oscillated in one plane to be thrown into and withdrawn from operative engagement with said wheel and a braking member arranged to be moved into and out of operative engagement with said wheel alternately with respect to the engagement of said friction wheel therewith.

3. A device of the class described comprising a pivoted lever arranged to be mounted adjacent to the driven wheel, said lever arranged to oscillate in a plane parallel with the plane of said wheel, a motor mounted on said lever, a friction wheel mounted on the shaft of said motor, a braking member carried by said motor, said friction wheel and braking member arranged to be alternately brought into operative relation with said driven wheel by the oscillation of said lever and means connected with said lever and mounted on the support for said driven wheel for oscillating said lever.

4. A device of the class described comprising a pivoted lever, a hinged support therefor, a friction wheel positioned adjacent to said support, a motor mounted on said lever, a friction wheel carried by the shaft of said motor, a braking member mounted on the latter, said friction wheel and braking member arranged to alternately engage said driven wheel due to the oscillations of said pivoted lever and means connected with said lever for oscillating the same when said hinged support is in one position, said support capable of being swung to a position to prevent engagement between said friction wheel, brake and driven wheel.

5. The combination with a sewing machine provided with a driven wheel and a table adjacent thereto, a support embodying a fixed and hinged portion, the fixed portion secured to said table, a pivoted lever mounted on the hinged portion of said support, a motor mounted on said lever provided with a friction wheel arranged to be driven thereby and a brake, said friction wheel and brake arranged to alternately engage said wheel when said lever is oscillated and when the hinged portion of said support is in one position and to be separated from said driven wheel when said hinged portion is moved to another position and means connected with said lever for oscillating the same, said connection fashioned to permit of the swinging of the motor away from said driven wheel.

6. The combination with a sewing machine provided with a driven wheel and a table adjacent thereto, a support embodying a fixed and hinged portion, an oscillating lever mounted on said hinged portion, a motor mounted on said lever provided with a friction wheel driven thereby and a brake, said friction wheel and brake arranged to be alternately thrown into and out of engagement with said wheel by the oscillations of said lever, said hinged portion arranged to swing said motor away from said driven wheel when moved in one direction and means connected with said lever for oscillating the same, said connection fashioned to permit of the swinging of the motor away from said wheel to permit said sewing machine to be driven by the conventional treadle and belt.

7. The combination with the driven wheel of a sewing machine, of a motor provided with a friction wheel and brake mounted for oscillatory movement adjacent to said driven wheel and arranged when oscillated to bring said friction wheel and brake alter-

nately into engagement with said driven wheel, means for oscillating said lever, said means embodying a suitably-supported rock shaft, an actuating arm thereon and means for connecting said rock shaft with said lever for oscillating said motor.

8. The combination with the driven wheel of a sewing machine, of a hinged support, a pivoted lever mounted on said support, a motor provided with a friction wheel and a braking member mounted on said lever, said friction wheel and braking member arranged to alternately engage said driven wheel whenever said lever is oscillated, said motor positioned to one side of the pivot of said lever whereby the weight of the former will normally maintain said lever in a position to bring said braking member into engagement with said driven wheel, the opposite end of said lever horizontally-curved with one end thereof approximately in alinement with the axis of said hinged portion, a suitably-supported rock shaft one end of which is provided with a crank, means for connecting said crank with the bent end of said lever and an operating arm for rotating said rock shaft and carried thereby.

9. The combination with the driven wheel of a sewing machine, of a hinged support, a pivoted lever mounted on said hinged support, a motor mounted on said lever provided with a friction wheel and brake, each arranged to alternately engage said driven wheel when said lever is oscillated and to be removed from said wheel when said hinged support is swung on its pivots, one end of said lever horizontally-bent, a suitably-supported rock shaft, a crank mounted on said rock shaft, means connecting said crank with the curved end of said lever and an operating arm mounted on said rock shaft for rotating the same.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM LENHART.

Witnesses:
C. E. HUMPHREY,
GLENARA FOX.