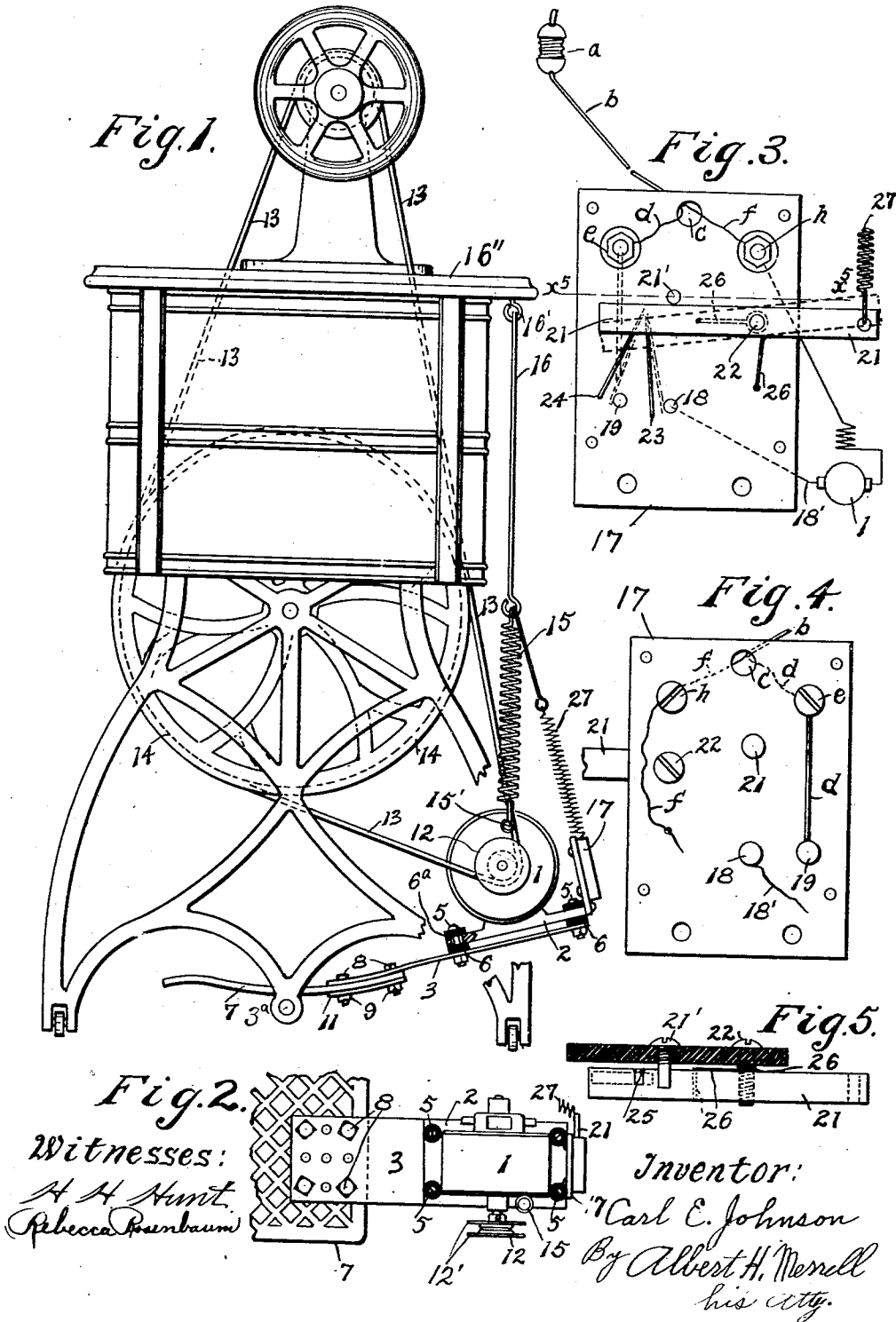


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MOTOR ATTACHMENT FOR SEWING MACHINES AND THE LIKE.
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933,710.

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UNITED STATES PATENT OFFICE.

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MOTOR ATTACHMENT FOR SEWING-MACHINES AND THE LIKE.

933,710.

Specification of Letters Patent.

Patented Sept. 7, 1909.

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To all whom it may concern:

Be it known that I, CARL E. JOHNSON, a citizen of the United States, residing at Los Angeles, California, have invented a new and useful Motor Attachment for Sewing-Machines and the Like, of which the following is a specification.

This invention relates to an improved means for attaching an electric motor to the treadle of a sewing machine or other treadle operated machine.

An object of the invention is to provide an attachment of the character stated which may be readily applied to various designs of sewing machines now on the market without the necessity of altering the construction of the sewing machine itself.

Another object is to provide a motor attachment adapted for being attached to the machine in a position where said attachment will be out of the way and also out of sight where it will not hinder the operation of the machine or detract from the appearance of the machine.

A further object is to provide for connecting the motor with the machine in such a manner that the operator by simply varying pressure upon the treadle may conveniently vary the speed of the machine.

The invention further relates to an improved treadle-operated means for controlling the electric switch.

Other advantages may hereinafter appear.

Referring to the accompanying drawings which illustrate the invention,—Figure 1 is an end elevation of a sewing machine provided with the attachment. Fig. 2 is a plan view of the motor and means for attaching the same to the machine, a fragment of the treadle being shown. Fig. 3 is a face view of the circuit closing device, the cover thereof being removed. In this view the motor is indicated diagrammatically. Fig. 4 is a face view of the opposite side of Fig. 3. Fig. 5 is a transverse section on line x^5 of Fig. 3.

Referring in detail to the drawings,—The motor 1 is provided with a flanged pedestal 2 which is attached to the base plate 3 by means of bolts 5 and nuts 6, the motor thus being mounted upon the treadle to swing on an axis coincidental with the treadle pivot 3^a. In order to make a yielding, non-conducting, connection between said pedestal 2 and base plate 3, rubber washers 6 are interposed between said pedestal and base plate

around the bolts 5 as shown in Fig. 1. 6^a are like washers between the heads of said bolts and the upper side of said pedestal 2. Said base plate 3 is attached at its front end to the pedal 7 by bolts 8, provided with nuts 9, and thus supports the motor somewhat to the rear of the pedal.

11 is a clamping plate through which the bolts 8 extend and which is placed between the nuts 9 and the lower side of the treadle 7. Ordinarily the treadle of the sewing machine is formed of grill-work as shown in Fig. 2 so that the base plate 3 may be clamped thereto as shown in Figs. 1 and 2 without the necessity of drilling any holes through the treadle.

The motor is provided with a driving pulley 12 moved into and out of operative engagement with the driving belt 13 which passes over the driving wheel 14 of the sewing machine.

15 is a tension spring tending to raise the rear end of the treadle so as to slacken the belt 13 and withdraw the pulley of the motor from operative engagement therewith when it is desired to stop the machine. Said spring 15 is illustrated as suspended by a rod 16 from a hook 16' made fast to the top board 16'' of the design of sewing machine, illustrated in the drawings, but it is to be understood that said spring may be attached in various ways as may be found most convenient on other machines.

15' designates a pin or stud projecting from the end of the motor to provide an attachment from the lower end of spring 15.

In order to turn the electric current on and off from the motor, circuit closing device 17 is provided furnished with terminals 18 and 19. To the circuit closing device 17 is pivoted an arm 21 of non-conducting material by a pivot stud 22. The inner end of said arm carries a resilient circuit making member having an arm 23 adapted to engage the stationary terminal 18 and an arm 24 adapted to engage the terminal 19 at the same time that the arm 23 engages the terminal 18. Said circuit making member preferably consists of a strip of phosphor bronze, but may be composed of any other spring metal. The angular portion of said spring member is desirably attached to the arm 21 by being seated in grooves 25 shown in Fig. 5. 26 designates a wire spring tending to maintain the switch open by holding

said arm 21 in the position shown in full lines in Fig. 3.

The current may be led from an ordinary light socket *a* through the cord *b* through the aperture *c*. One wire *d* of the cord *b* leads to the binding post *e* and thence to the terminal 19. The other wire *f* leads to the binding post *h*, thence to the motor 1, the circuit being completed by a wire 18' which connects the motor with the terminal 18.

To the outer end of arm 21 is attached a coiled tension spring 27. The upper end of said spring is suspended from some stationary part of the machine preferably by being fastened to the lower end of the rod 16.

In operation, when the operator depresses the rear end of the treadle 7 the circuit closing device 17 moves downwardly and the tension upon spring 27 increases to overcome the tension of spring 26 so that the lever 21 is thrown to the position shown in dotted lines in Fig. 3 thus making a circuit from the terminal 19 to the terminal 18 through the circuit making arms 23 and 24, thus putting the motor into operation. This action is effected by a slight movement of the treadle 7. Upon a further movement of the treadle the belt 13 is tightened upon the driving pulley 12 so that the motor, which has already been started, will turn the wheel 14 operating the machine.

One of the advantages of making contact by means of the spring arms 23 and 24 is that said arms, as the treadle is fully depressed, slide somewhat across the pins 18 and 19 after they come in contact with said pins thus automatically cleaning the contact points.

In operating the device, if the operator desires to run the machine at less than full speed she will apply but a slight pressure to the treadle and will not draw the driving belt 13 so tightly across the driving pulley 12 but that said belt will slide somewhat along the groove of said pulley and will not drive the machine at so great a speed as when said belt is drawn taut.

While the invention is not limited to the use of any specific electric motor, it is nevertheless desirable that a motor be employed which has a good starting torque, preferably a series wound motor.

The flanges 12' of the motor pulley 12 are made of considerable length so as to be sufficiently large to prevent the belt 13, when slackened, from becoming disengaged from the pulley.

18' is the wire leading from the switch to the terminal 18. 21' is a pin forming a stop to engage the upper side of the arm 21.

I claim:

1. The combination, with a machine having a treadle and a driving wheel located above said treadle, of an electric motor mounted on said treadle to swing on an axis

coincidental with the pivot thereof, yielding means tending to raise that end of said treadle, said motor being provided with a driving pulley, a belt extending around the driving wheel of the machine and said driving pulley, and means for making and breaking the electric circuit through said motor.

2. The combination, with a machine having a driving wheel and a treadle therebeneath, of an electric motor mounted on said treadle at one side of the pivot thereof, yielding means tending to raise that end of said treadle, a switch mounted on said treadle to open and close circuit through said motor, a connection leading from said switch up to a stationary part of said machine to close said switch when the treadle is depressed, said motor being provided with a driving pulley, and means to operatively connect said pulley with said driving wheel of the machine.

3. In combination, a machine, a treadle adapted to operate the same, an electric motor mounted on said treadle, means operatively connecting said motor with said machine, a switch mounted on said treadle to open and close circuit through said motor, and a connection leading from said switch to a stationary part of said machine to operate said switch by a movement of said treadle.

4. In a device of the character described, the combination, with the machine, treadle, motor mounted on said treadle, and means for operatively connecting said motor with said machine; of a switch for said motor comprising stationary terminals, a contact making member provided with spring arms adapted to simultaneously engage said terminals, a pivoted arm carrying said contact making member, a spring to normally hold said arm in position to maintain open circuit, and a connection leading from said arm to a stationary part of said machine to close the circuit by a movement of the treadle.

5. In combination, a machine, a treadle mounted thereon, an electric motor mounted on said treadle, means to operatively connect said motor with said machine, automatic means normally maintaining said motor in an inoperative condition, a circuit closing device in the circuit of said motor, automatic means for maintaining said circuit closing device in an inoperative condition, and means for operating said circuit closing device and motor by a movement of the treadle.

6. In a device of the character described, the combination with the machine and treadle thereof, of an electric motor mounted on said treadle to swing on an axis coincidental with the pivot of the treadle, and means for operatively connecting said motor with said machine.

7. In a device of the character described, the combination, with the machine, treadle, and motor mounted on said treadle, of an

electric switch mounted on said treadle to control the circuit through said motor, a connection between said switch and machine to cause an initial movement of said treadle to close said switch and a further movement of said treadle to automatically clean the contact making elements.

8. In a device of the character described, the combination, with an electric motor, a machine operated by said motor, and a treadle mounted on said machine; of a circuit closing device to control said motor, said device being mounted on said treadle, and a connection extending from said device to a stationary part of said machine to cause a movement of said treadle to operate said circuit closing device.

9. In a device of the character described, the combination, with an electric motor, a machine operated by said motor and a treadle mounted on said machine; of a switch to control said motor comprising stationary terminals, a contact making member consisting of a pair of spring arms formed in a single piece,

said arms being adapted to simultaneously engage said terminals, a movable part whereon said arms are mounted, a spring normally holding said part in position to maintain open circuit, and a connection leading from said part to a stationary part of said machine to close the circuit by a movement of the treadle.

10. In a device of the character described, the combination with the machine, treadle thereof, and motor for operating the machine, of an electric switch mounted on said treadle and connected to a stationary part of the machine, to provide for operating said switch by a movement of said treadle.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses at Los Angeles, in the county of Los Angeles and State of California, this fifth day of April 1909.

CARL E. JOHNSON.

Witnesses:

ALBERT H. MERRILL,
FLORA H. FOSS.