H. S. BALDWIN.

ELECTRIC MOTOR ATTACHMENT FOR SEWING MACHINES.

APPLICATION FILED OCT. 14, 1909.

993,944. Patented May 30, 1911.

2 SHEETS—SHEET 1.

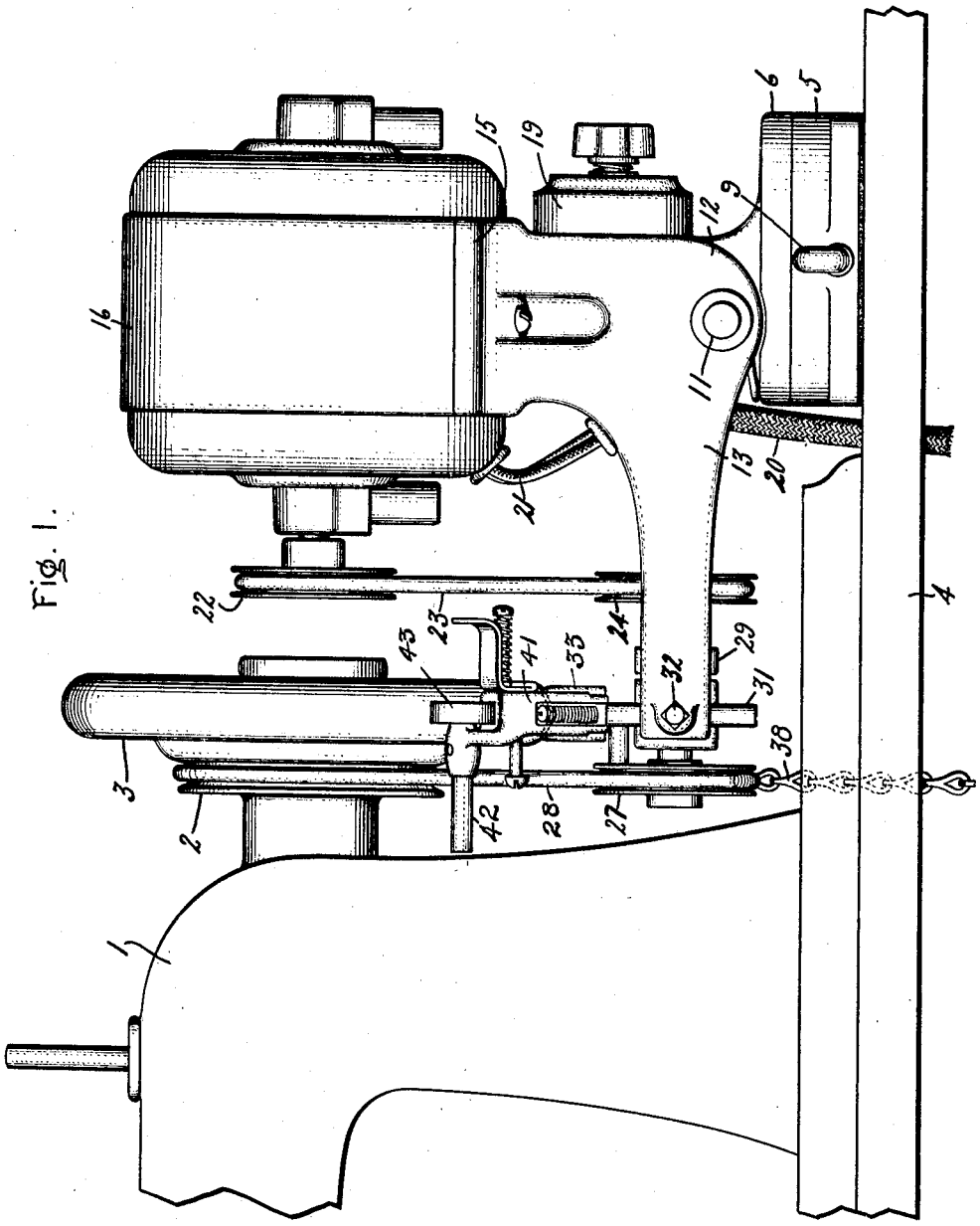

Fig. 1.

Witnesses:

George H. Tilden

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Inventor:

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by Albert G. Davis

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2 SHEETS-SHEET 2.

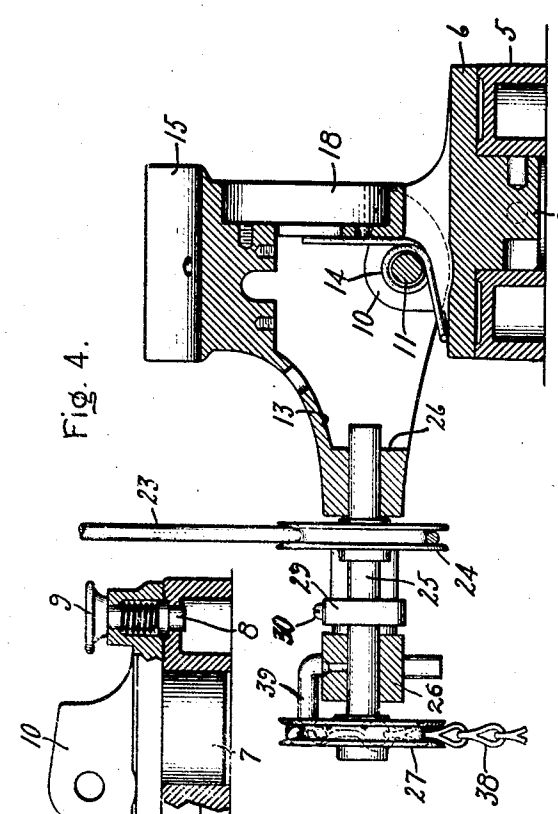

Fig. 4.

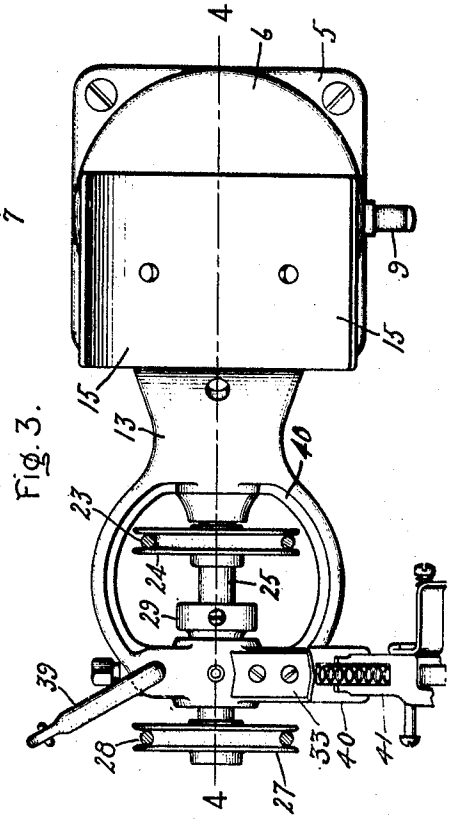

Fig. 3.

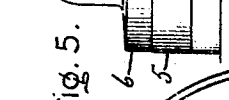

Fig. 5.

Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY S. BALDWIN, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ELECTRIC-MOTOR ATTACHMENT FOR SEWING-MACHINES.

993,944. Specification of Letters Patent. Patented May 30, 1911.

Application filed October 14, 1909, Serial No. 522,625.

To all whom it may concern:

Be it known that I, HENRY S. BALDWIN, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Electric-Motor Attachments for Sewing-Machines, of which the following is a specification.

This invention relates to devices for attaching electric motors to sewing machines. There has long been a demand for a practical attachment for this purpose adapted to be applied to all of the many types of sewing machines now on the market. Such a device must be simple in construction, flexible in control, attractive in appearance, inexpensive, and readily attached to and dismounted from the sewing machine. Moreover, it should not interfere with the regular foot treadle and fly wheel driving equipment, so that in case of breakdown of the motor or failure of current, the machine could be run in the usual manner.

My invention aims to meet all these requirements, and to this end it consists in a suitable base attachable to the sewing-machine table, a turn-table or swivel rotatable on said base, a saddle pivotally supported on said swivel on a horizontal axis, a bracket extending from said swivel at right angles to said axis, a motor seated on the saddle, a countershaft journaled in said bracket with its axis parallel with that of the motor-shaft, a power belt connecting the motor and the countershaft, a driving belt for connecting the countershaft with the sewing machine belt pulley, a brake shoe on the bracket to engage with the hand-wheel of the sewing machine, a spring urging said bracket and brake toward said wheel, and a connection between said bracket and the treadle of the sewing machine whereby the operator can depress the bracket to tighten the driving belt and start the machine, or on the other hand, allow the spring to raise the bracket, slacken the driving belt and apply the brake. If the operator wishes to run the sewing machine by foot power, the driving belt from the countershaft is thrown off, and by loosening a catch, the motor and its bracket can be swung around on the base out of the way. In a similar manner the motor can be turned aside when the cover is to be placed on the machine, or when a drop head is to be lowered. The motor stands in line with the head of the sewing machine and its base occupies but little space on the table of the machine. The switch for controlling the current which operates the motor is conveniently located on the bracket within easy reach of a person sitting at the machine.

In the accompanying drawings, Figure 1 is a front elevation of the device; Fig. 2 is an end elevation, partly in section; Fig. 3 is a top plan view, with the motor removed; Fig. 4 is a vertical section on the line 4—4, Fig. 3; and Fig. 5 shows a modified locking bolt for the swivel.

The sewing machine may be of any desired make, provided it has a shaft located in the upper part of its head 1 and equipped with a belt pulley 2 and hand-wheel 3. In the drawing, the belt pulley is shown as located inside of the hand-wheel, but it may, if desired, be outside of the same, that is, to the right hand thereof in Fig. 1.

Secured to the table 4 of the sewing machine, at the right hand end thereof and in line with the head 1, is a base 5 which has a flat top and a central cylindrical socket. Resting on this base is a swivel 6, provided with a central pin 7 fitting rotatably in said socket. A locking bolt secures the base and swivel together and prevents accidental angular movement of the swivel. The bolt is preferably a spring bolt 8 provided with a handle 9 for withdrawing it, and it may be located in the base to engage with sockets in the pivot pin 7, as shown in Figs. 1, 2 and 3, or be mounted in the swivel to enter holes in the base, as shown in Fig. 5. Upon withdrawing this bolt, the swivel can be horizontally rotated on the base and if desired may be locked in some other position.

On the swivel are two upright ears 10, perforated to receive a horizontal pintle 11 which passes also through depending legs 12 on a substantially L shaped bracket 13 and thus serves to hinge said bracket to the swivel. A spring 14 is coiled around the pintle between the ears 10, abutting against the swivel and the bracket, and urging the horizontal arm of said bracket upwardly. The top of the bracket forms a saddle 15, curved to fit the casing of a small standard electric motor 16, which may be secured in

place by screws 17 passing up through the saddle into said motor casing. Just beneath the saddle the bracket has a recess 18 to receive a snap switch 19 which controls the motor, current being brought to said switch by a cable 20 and conveyed to the motor by the leads 21.

The motor shaft carries a belt pulley 22 which is connected by an endless power belt 23 with a pulley 24 on a countershaft 25 journaled in bearings 26 in the horizontal arm of the bracket 13. The countershaft is parallel with the shaft of the motor and both are normally parallel with the shaft of the sewing machine and perpendicular to the axis of the pintle 11. The left-hand end of the countershaft overhangs the bracket and a driving pulley 27 is fixed on said countershaft in the plane of the belt pulley 2, to which it is connected by a belt 28. With this system of pulleys, power belt and driving belt the motor may be run at a speed considerably higher than the sewing machine.

The countershaft is held from axial displacement by the hub of the pulley 24 and a collar 29 secured by a set screw 30, said hub and collar being located close to the inner ends of the bearings 26. By loosening the set screw 30, or also those which fasten the pulleys 24 and 27 to the shaft, it is possible to remove the pulley 27 and the collar and then replace the pulley in the location formerly occupied by the collar. This will bring the driving pulley 27 into line with an outside belt pulley on the sewing machine.

In the outer end of the bracket in the plane of the hand-wheel 3, is an upright post 31, which is secured by a set screw 32 so that it can be adjusted up or down. On the upper end of this post is mounted a brake shoe 33. The shoe is adapted to engage with the periphery of the hand-wheel when the spring 14 throws up the bracket. When thus engaged, the driving belt is slacked so that it does not operate the sewing machine, and thus the brake 33 can stop the machine and hold it stationary.

In order to pull down the bracket, release the brake and tighten the driving belt I provide a chain 38, or other suitable connection, attached at one end to the bracket and passing down to a pedal, preferably the treadle of the machine. The chain may be conveniently attached to an arm 39 projecting to one side of the bracket.

If desired, a bobbin winder can be mounted on the bracket in proximity to the hand-wheel 3. This consists preferably of an arm 40, extending from the brake post 31, and having at its outer end a pivoted spring pressed arm 41 which carries a bearing for the arbor 42 on which is a small pulley 43. The arbor is of a suitable size to receive a bobbin, and by rocking the arm 41 the pulley will be brought into and out of contact with the wheel 3.

If it is desired to disconnect the motor in order to drop the head or put on a cover, or operate the machine by foot power, the driving belt 28 can be thrown off, the chain unhooked from the arm 39, the locking bolt withdrawn and the swivel rotated upon the base, swinging the bracket horizontally away from the hand-wheel. If the motor is not likely to be used for some time, it can be lifted off the base and packed away. The base remains attached to the table 4, but it is small and inconspicuous and does not interfere with the ordinary use of the machine.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. An electric motor attachment for rotary shaft sewing machines, comprising a motor-supporting bracket hinged on an axis transverse to the shaft of said machine, and a countershaft journaled in said bracket with its axis normally parallel with that of said machine.

2. An electric motor attachment for rotary shaft sewing machines, comprising a motor-supporting bracket hinged on an axis transverse to the shaft of said machine, and a countershaft journaled in said bracket with its axis normally parallel with that of said machine and a spring urging said bracket upward.

3. An electric motor attachment for rotary shaft sewing machines comprising a motor-supporting bracket hinged on an axis transverse to the shaft of said machine, and a countershaft journaled in said bracket with its axis normally parallel with that of said machine, a spring urging said bracket upward and a swiveled support on which said bracket is hinged.

4. An electric motor attachment for rotary shaft sewing machines, comprising a base, a swivel thereon, a bracket adapted to support a motor and hinged to said swivel on a horizontal axis normally transverse to the shaft of the machine, a countershaft journaled in said bracket, and belt pulleys on said countershaft.

5. An electric motor attachment for sewing machines, comprising a swiveled support, a bracket hinged thereon and having a saddle for a motor, a spring urging said bracket upward, a countershaft journaled in said bracket with its axis perpendicular to that of the hinge, and belt pulleys on said countershaft.

6. An electric motor attachment for sewing machines, comprising a swiveled support, a bracket hinged thereon and having a saddle for a motor, a spring urging said bracket upward, a countershaft journaled in said bracket with its axis perpendicular to that of the hinge, and belt pulleys on said

countershaft and a brake on said bracket for engagement with the hand wheel of the sewing machine.

7. An electric motor attachment for sewing machines, comprising a swiveled support, a bracket hinged thereon and having a saddle for a motor, a spring urging said bracket upward, a countershaft journaled in said bracket with its axis perpendicular to that of the hinge, and belt pulleys on said countershaft, a vertically-adjustable post on said bracket, and a brake-shoe yieldingly supported on said post.

8. The combination with a sewing machine having a horizontal shaft, of an L shaped bracket hinged on an axis transverse to that of the machine shaft, and having its horizontal arm extending toward said machine, a countershaft journaled in said arm, an electric motor supported on said bracket, a belt connecting said motor and said countershaft, and a belt connecting said countershaft and said machine shaft and adapted to be tightened or slackened by movement of said bracket on its horizontal axis.

9. The combination with a sewing machine having a horizontal shaft, of a base in line with the shaft of said machine, a support swiveled thereon on a vertical pivot, a bracket hinged to said support about a horizontal axis, an electric motor mounted on said bracket, a countershaft mounted in said bracket and geared to said motor, and means whereby a movement of said bracket in one direction communicates power from said countershaft to said machine and movement in the other direction applies a brake thereto.

10. The combination with a sewing machine, of an electric motor, a countershaft parallel thereto, a power belt connecting said motor and countershaft, a driving belt connecting said countershaft with the sewing machine, and means for rocking said motor and countershaft in the common plane of their axis in order to tighten or slacken the driving belt.

In witness whereof, I have hereunto set my hand this 12th day of October, 1909.

HENRY S. BALDWIN.

Witnesses:

JOHN A. McMANUS, Jr.,

CHARLES A. BARNARD.