Jan. 27, 1925. 1,524,026

F. DIEHL

ELECTRIC SEWING MACHINE

Filed Aug. 5, 1921 2 Sheets-Sheet 1

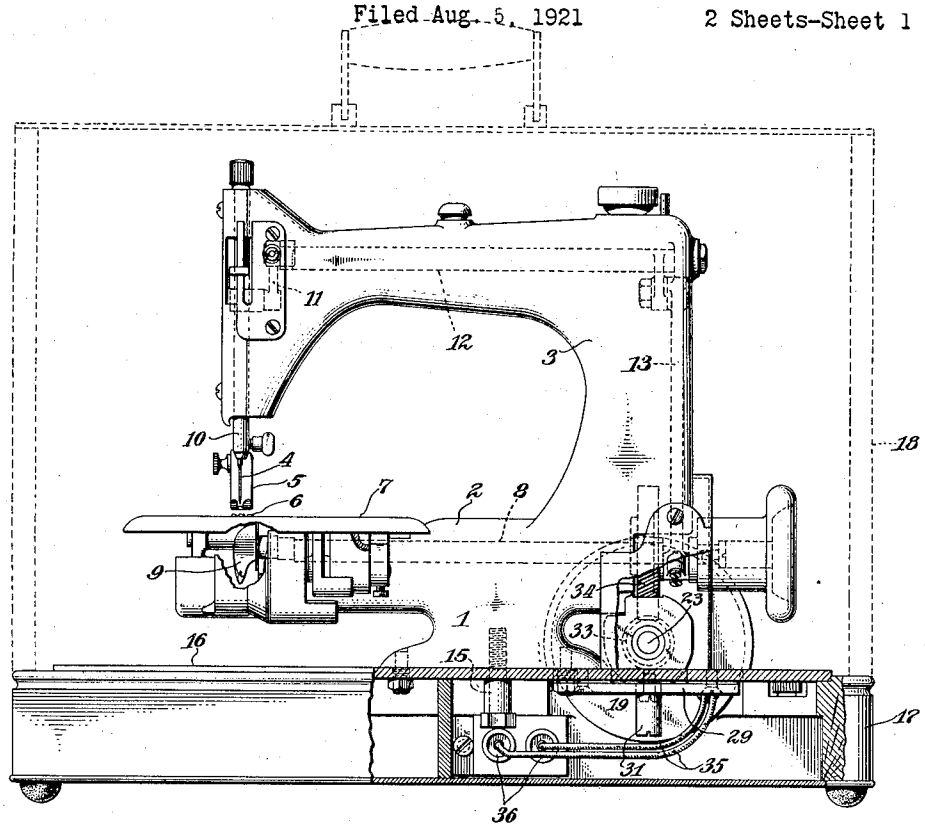


Fig. 1.

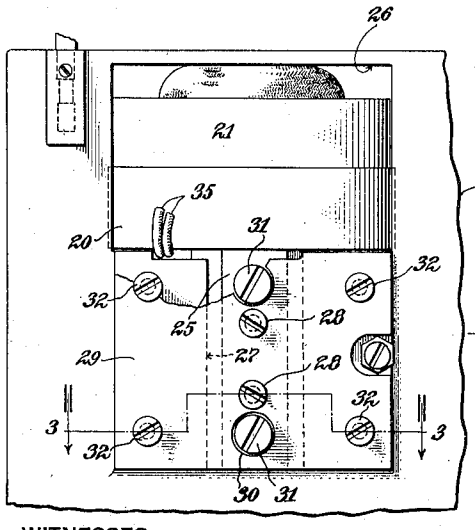


Fig. 2.

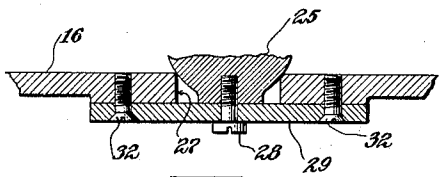


Fig. 3.

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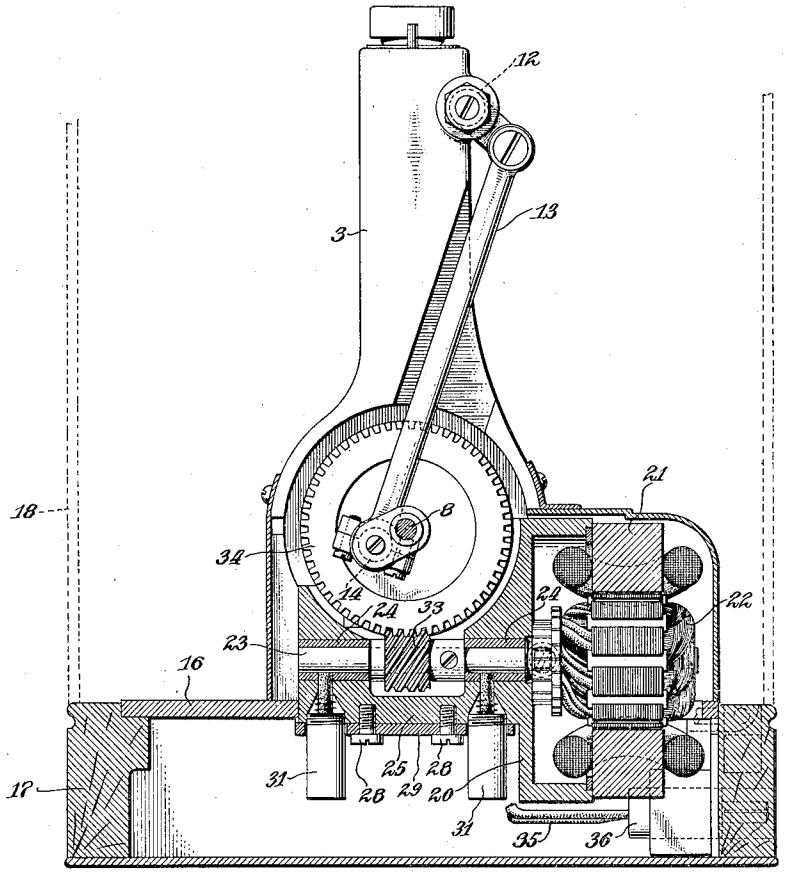


Fig. 4.

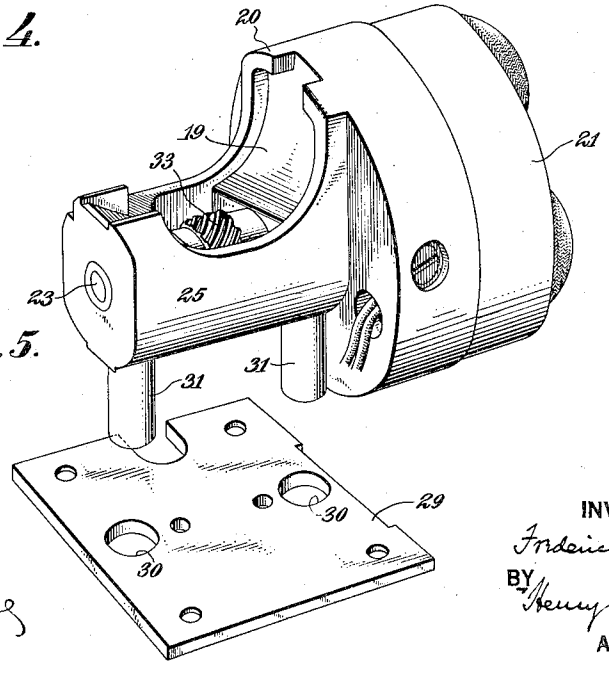


Fig. 5.

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UNITED STATES PATENT OFFICE.

FREDERICK DIEHL, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, OF ELIZABETH, NEW JERSEY, A CORPORATION OF NEW JERSEY.

ELECTRIC SEWING MACHINE.

Application filed August 5, 1921. Serial No. 490,050.

To all whom it may concern:

Be it known that I, FREDERICK DIEHL, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Electric Sewing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to sewing machines more particularly of the so-called "portable" type and has for an object to provide a motor-driven sewing machine of compact and light-weight, yet durable and efficient construction, so that it may be readily carried from place to place without fatigue and set up for use on an ordinary table.

Another object of the invention is to provide a chain-stitch sewing machine of the type having its rotary main-shaft below the level of the cloth-plate, with a motor drive which will not add objectionably to the weight of the outfit or to the size of the usual carrying case encompassing it.

Further objects of the invention will appear as the description proceeds.

Heretofore, the driving motor for a machine of the type referred to, has been of heavy low-speed construction necessitated by the fact that the motor-shaft was directly connected to the sewing machine shaft and rotated at the same speed as the latter. Also a long carrying case was required to house both the machine and its motor.

In the present instance the motor is of the small high-speed type and is mounted on the sewing machine base-plate with its shaft transverse to the sewing machine shaft; the drive being effected through spiral gears. Preferably, the motor is of the type having its shaft bearings entirely at one side of the motor armature to reduce to a minimum the extension of the motor laterally of the sewing machine, and bring it within the space enclosed by the usual hand-carrying case. Any usual type of motor-controller or rheostat may be used in the motor circuit.

In the accompanying drawings, Fig. 1 is a front elevation, partly in section of a sewing machine embodying the invention. Fig. 2 is a fragmentary bottom plan view of the machine and motor-supporting base-plate. Fig. 3 is a section on the line 3—3, Fig. 2. Fig. 4 is a transverse vertical section in the plane of the motor-shaft, and Fig. 5 is a disassembled perspective of the motor and its attaching plate.

The outfit includes a sewing machine of the well known Singer A. C. S. type comprising a pedestal 1, bed 2, bracket-arm or gooseneck 3, needle 4, presser-foot 5 and feed-dog 6 operating as usual through apertures in the cloth-plate 7 below which and in the bed 2 is journaled the rotary main-shaft 8 on which is mounted the usual rotary chain-stitch looper 9. The needle 4 is carried by the reciprocatory needle-bar 10 which is operated by the link connection 11 with the rock-shaft 12 having the usual pitman connection 13 with the crank 14 on the main-shaft 8.

The pedestal 1 of the machine is secured by means of the screw-bolt 15 to the rectangular plate 16 which fits and closes the top opening of the hollow wooden base-member 17 of the usual hand-carrying case 18.

The driving motor 19 is preferably constructed substantially in accordance with the disclosure of the Dosch et al. Patent No. 1,311,114, of July 22, 1919, and comprises the frame 20, field 21 and armature 22 carried at one end of the motor-shaft 23 which is journaled in the space bearing 24, 24 in the bearing extension 25 of the frame 20.

The motor is received in a T-shaped aperture in the base-plate 16, the field 21 and circular part of the motor-frame fitting the head 26 of the T-shaped aperture while the extension 25 of the motor-frame is received within the stem 27 of the said aperture.

Secured to the under face of the motor-frame extension 25 by screws 28 is the rectangular plate 29 having clearance holes 30 for the motor oil-cups 31. This plate is secured to the under side of the base-plate 16 by screws 32 and serves to fix the motor rigidly in operative position with its driving pinion 33 in mesh with the driven gear 34 on the sewing machine shaft 8. The motor leads 35 may extend to the usual plug-terminals 36 in the rear side wall of the base 17.

The driven gear 34 is housed within the open bottomed cavity 37 of the hollow enlargement 38 at the base of the goose-neck 3 where the latter joins the bed 2. The main-shaft 8 passes through the gear cavity 7 and supports the driven gear 34 therein. The

motor frame extension 25 substantially closes the bottom of the gear cavity, as shown best in Fig. 4.

It will be noted that the carrying case for the entire outfit described is no longer or larger in any respect than the usual carrying case commonly used for machines of this type, without the motor.

Having thus set forth the nature of the invention, what I claim herein is—

1. A portable electric sewing machine comprising a hand carrying case having a hollow rectangular base, a flat plate removably closing the top opening in said base and formed with a motor-receiving aperture, a sewing head constructed with a frame having a pedestal mounted on the upper side of said flat plate, a raised cloth-plate and a main-shaft below said cloth-plate, and a driving motor received within the aperture in and carried entirely by said plate, said motor having its shaft disposed transversely of and below the sewing machine main-shaft, and a reduction gear connection between said motor and machine shafts.

2. A portable electric sewing machine comprising a hand carrying case having a hollow rectangular base, a flat plate removably closing the top opening in said base and formed with a motor receiving aperture, a sewing head constructed with a frame having a pedestal mounted on the upper side of said flat plate and a gooseneck formed adjacent its juncture with said pedestal with an open-bottomed gear cavity, a main-shaft journaled in the sewing head frame and passing through said gear-cavity, a gear-wheel fixed to the main-shaft within said cavity, and an electric motor having a field-frame received within the aperture in said flat plate and a bearing extension at one side of said field-frame below said gear-cavity, said bearing extension being secured to said flat plate and said motor having a power-shaft journaled in said bearing extension and connected to drive said gear-wheel.

In testimony whereof, I have signed my name to this specification.

FREDERICK DIEHL.