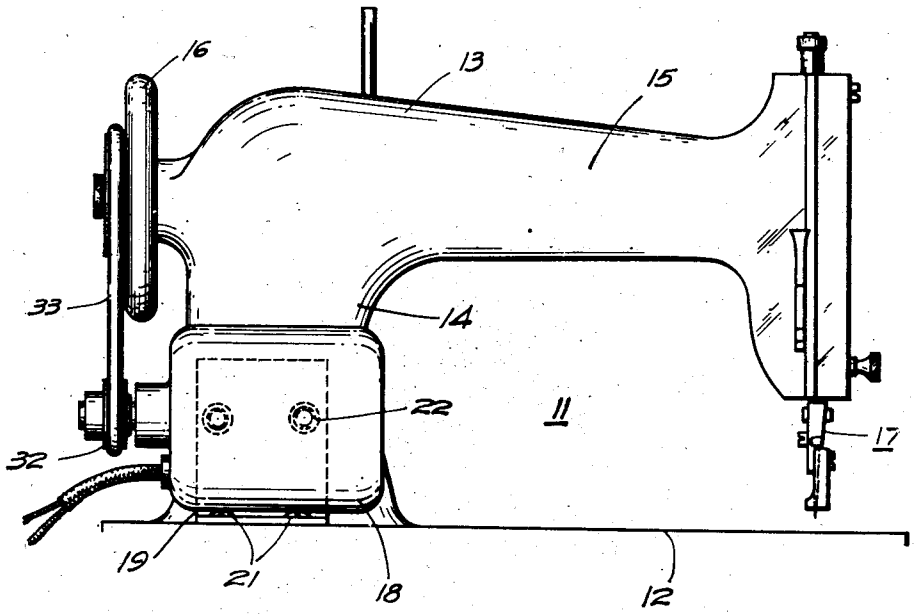
June 4, 1929. R. EHRENFELD 1,715,698

ELECTRIC MOTOR DRIVE FOR SEWING MACHINES

Filed July 7, 1928

Fig. 1



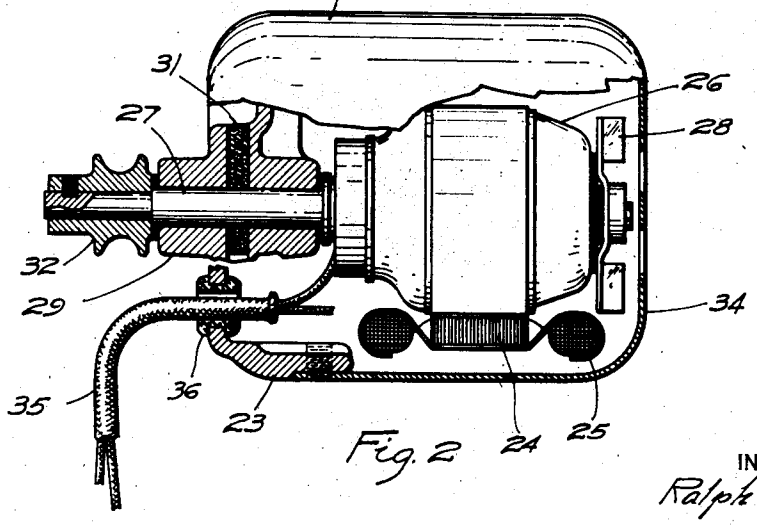


Fig. 2

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Patented June 4, 1929. 1,715,698

UNITED STATES PATENT OFFICE.

RALPH EHRENFELD, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

ELECTRIC-MOTOR DRIVE FOR SEWING MACHINES.

Application filed July 7, 1928. Serial No. 291,065.

My invention relates to sewing machines and particularly to electric-motor drives therefor.

An object of my invention is to provide a relatively simple and reliable motor construction and mounting for driving a sewing machine that shall prevent oil or grease coming into contact with goods being sewed.

In practicing my invention, I provide, in combination with the usual sewing machine embodying a bed-plate, a goose-neck thereon, a driven shaft therein and the usual stitching mechanism, a single-bearing motor mounted at the rear of the goose-neck, the single bearing of the motor being located at that end thereof away from the stitching mechanism.

In the single sheet of drawings,

Figure 1 is a view, in rear elevation, of a sewing-machine head, having associated therewith a motor embodying my invention and

Fig. 2 is a view, in longitudinal vertical section, through the motor, part of the casing being shown in elevation.

A sewing machine, designated generally by the numeral 11, embodies the usual base or bedplate 12 having thereon a goose-neck 13 comprising a vertically extending portion 14 and a substantially horizontally extending portion 15. A hand wheel 16 is mounted, at one end of the goose-neck, on a shaft (not shown) of the type of construction usually provided in sewing machines of this kind. A stitching mechanism 17 is provided at the other end of the goose-neck, all of these parts being those usually provided in sewing machines of this kind, particularly those sold for domestic use.

An electric motor 18 is operatively associated with the sewing machine and is mounted at the rear of the vertical portion 15 of the goose-neck and supported on the bedplate 12 by means of a bracket 19 of substantially L-shape.

The lower portion of the bracket 19 is secured to the bedplate 12 by a plurality of screws 21, and the motor 18 is secured against the vertical extending portion of the bracket 19 by a plurality of screws 22.

Motor 18 embodies a frame 23, a laminated core 24 held thereagainst by suitable means, not shown in the drawing, field coils 25 and an armature 26 mounted on a shaft 27. A fan 28 is mounted on the outer end of the armature shaft 27 which is rotatably supported in the member 23 by a single relatively long bearing structure 29. Oiling means for the bearing 29 is shown as embodying a wick 31 operatively associated with the bearing, in any manner well-known in the art, to permit of properly lubricating the shaft and the bearing.

A pulley 32 is mounted on the outer end of the shaft 27 to be operatively connected to the driven shaft of the sewing machine by means of a belt 33.

A casing 34 of relatively thin sheet metal is operatively associated with the frame 23 to which it is secured by any suitable means well known in the art.

Supply-circuit conductors 35 are provided to permit of energizing the field coils and the armature, the conductors 35 extending into the frame 23 through an opening partially filled by an electric-insulating bushing 36.

While I have illustrated and described a specific embodiment of an electric motor, I desire here to point out that the details of construction thereof are immaterial, except in so far as the single-bearing feature is concerned; that is, while I have shown an armature embodying a commutator, a laminated field-magnet core and concentrated field coils, I may use an alternating-current motor of the inductor or other type, so long as a single bearing structure only is used.

I am aware that it is not new to drive sewing machines, and particularly domestic sewing machines, by electric motors, but, to the best of my knowledge and belief, substantially all of these motors embody two bearings, one located at the end of the motor adjacent to the stitching mechanism and to the work being operated upon, and the other bearing located at the other end, away from the cloth and stitching mechanism. I have found that it is almost impossible to prevent oil or grease leaking out of the bearing upon some part of the bearing structure proper or the motor structure where it may be engaged by a piece of cloth being sewed.

In contradistinction to this, my invention provides a motor embodying a single-bearing structure which is located at that end of the motor away from the stitching mechanism so that there is no danger of leakage

of oil or grease to the outside of the motor at that end thereof adjacent to the stitching mechanism.

By proper design of the motor, I am enabled to make the frame relatively small and locate it adjacent to the rear face of the vertical portion 14 of the goose-neck so that, as shown more particularly in Fig. 1 of the drawings, it will not project appreciably therebeyond and occupy space which is normally provided by the designer of the sewing machine for the cloth or material being operated upon.

The device embodying my invention comprising a single-bearing motor and its mounting, thus provides a relatively simple and highly efficient means for preventing oil and grease from leaking out of a bearing where it can be engaged by cloth being sewed.

Since various modifications may be made in the device embodying my invention without departing from the spirit and scope thereof, I desire that only such limitations shall be placed thereon as are imposed by the prior art or are set forth in the appended claims.

I claim as my invention:—

1. In a sewing machine having a bedplate, a goose-neck thereon, and the usual stitching mechanism at the outer end of the goose-neck, a motor embodying a driving shaft and a single bearing only therefor, the bearing being located on that end of the motor which is remote from the stitching mechanism.

2. In a sewing machine having a bedplate, a goose-neck thereon, a driven shaft therein and the usual stitching mechanism at the outer end of the goose-neck, an electric motor mounted on the bedplate and embodying an armature shaft extending parallel to the driven shaft and a single armature-shaft-bearing only, located on that end of the motor remote from the stitching mechanism.

3. In a sewing machine having a bedplate, a goose-neck thereon, a driven shaft therein and the usual stitching mechanism at the outer end of the goose-neck, an electric motor mounted at the rear of the vertical portion of the goose-neck and embodying a single bearing only, said bearing being located on that end of the motor remote from the stitching mechanism.

4. In a sewing machine having a bedplate, a goose-neck, an electric motor mounted at the rear of, and substantially covered by, the vertical portion of the goose-neck and embodying an armature shaft extending parallel to the driven shaft, and a single armature-shaft bearing only, located at that end of the motor remote from the stitching mechanism.

In testimony whereof, I have hereunto subscribed my name this 18th day of June, 1928.

RALPH EHRENFELD.