Nov. 17, 1964 R. R. BIRCH ETAL 3,157,142

DRIVE MEANS FOR SEWING MACHINES

Filed Aug. 29, 1961 2 Sheets-Sheet 1

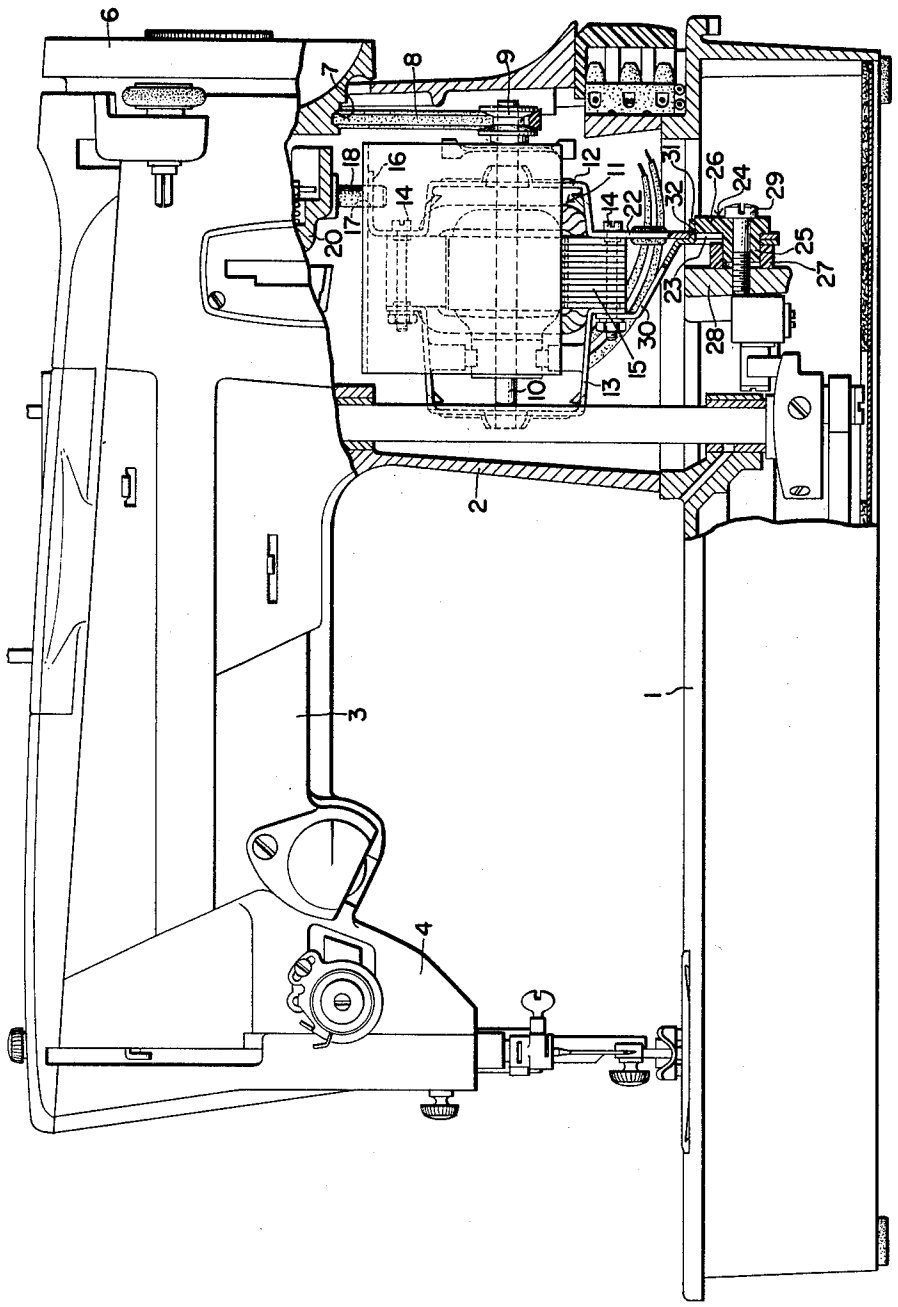


Fig. 1

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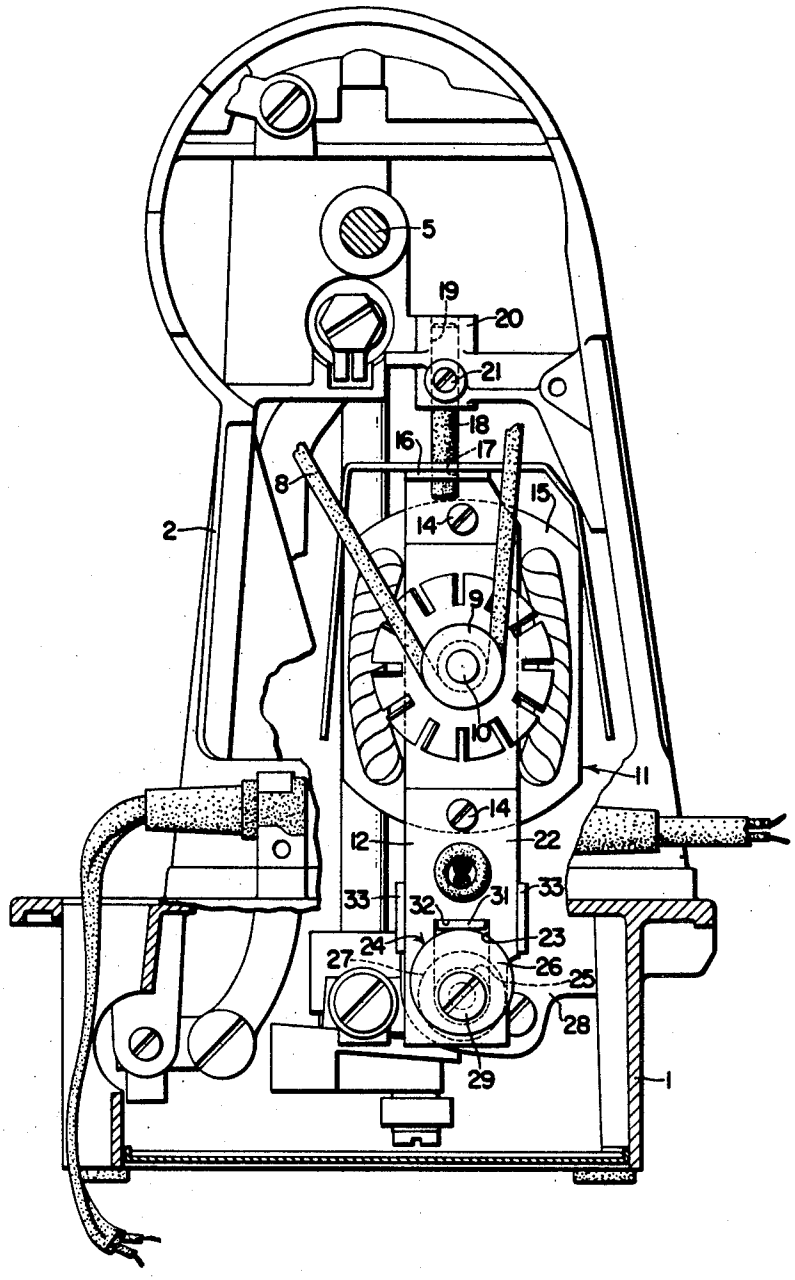


Fig. 2

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DRIVE MEANS FOR SEWING MACHINES

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Claims priority, application Great Britain July 25, 1961
2 Claims. (Cl. 112—220)

The present invention relates to a drive means for sewing machines and particularly to a means for mounting a sewing machine motor.

The present invention is an improvement of the construction forming the subject matter of the United States patent application of Bialy, Serial No. 4,353, filed January 25, 1960, now Patent No. 3,051,109.

The object of this invention is to provide means for mounting a sewing machine motor, which means will securely support the motor and positively prevent unintentional displacement thereof, and which at the same time is simple and economical, effective and durable, and which will provide for convenient adjustment of the motor for the purpose of effecting tightening of a driving belt.

Having in mind the above and other objects that will be evident from an understanding of this disclosure, the invention comprises the devices, combinations and arrangements of parts as illustrated in the presently preferred embodiment of the invention which is hereinafter set forth in such detail as to enable those skilled in the art readily to understand the function, operation, construction and advantages of it when read in conjunction with the accompanying drawings in which:

FIG. 1 is a front elevational view of a sewing machine embodying the present invention, with the lower portion of the sewing machine standard broken away and shown in section.

FIG. 2 is an end elevational view of the sewing machine of FIG. 1 and partly broken away and in section to illustrate the present invention more clearly.

With reference to the drawings, the illustrated sewing machine has a frame comprising a bed 1 from the one end of which rises a vertically-arranged hollow standard 2 carrying a bracket arm 3 overhanging the bed 1 and terminating in a head 4. Journaled longitudinally of the bracket arm 3 is a main shaft 5 (FIG. 2) which drives the various mechanisms of the machine. Mounted upon the standard end of the main shaft 5 is a combined handwheel and belt pulley 6 having a belt groove 7 that receives a driving belt 8.

The belt 8 is also entrained about a pulley 9 on the drive shaft 10 of a skeleton-type electric motor 11 arranged on a horizontal axis parallel to the axis of the main shaft 5 and disposed within the hollow standard 2. The motor 11 is supported by a motor carrying member comprising a bearing bracket 12, which, together with a second bearing bracket 13 is secured by bolts 14 to the stator core 15 of the motor.

For mounting the motor within the standard 2 the bracket 12, which is preferably formed of sheet metal, is extended at its upper end to provide a horizontally arranged arm 16 having an aperture 17 that slidably receives a stud 18. The stud 18 is received within a bore 19 in a transverse bearing wall 20 in the upper portion of the standard 2 and is secured therein by a set screw 21. At its lower end the bracket 12 is extended to provide an arm 22 having a vertically elongated aperture 23 that receives a bushing 24 having a shank portion 25

extending through the aperture 23 and a head 26 having a diameter greater than the width of the aperture 23 and thus in engagement with the arm 22 around the aperture. A spacer sleeve 27 surrounds the shank 25 of the bushing 24 and abuts at its opposite ends against the arm 22 and a boss 28 in the bed 1. A screw 29 extends through the bushing 24 and is threaded into the boss 28 to clamp the opposite faces of the arm 22 between the head 26 of the bushing 24 and the end of the sleeve 27.

The above construction is substantially as disclosed in the above noted prior application Serial No. 4,353, now Patent No. 3,051,109. In this prior construction, the motor was held in the vertically adjusted position by friction that was produced by clamping the arm 22 against the boss 28 by the screw 29 acting on the bushing 24. On occasion, for example, if the machine is dropped during shipment, this frictional engagement is not sufficient to prevent displacement of the motor. Also, in the prior construction, the motor is supported solely by the bracket 13.

To prevent such displacement of the motor as occurred in the prior construction and to provide a more secure mounting therefor, the present device is provided with a bracket 30 secured at its upper end by the lower one of the bolts 14 to the stator core 15 of the motor on the side thereof opposite from the side on which the bracket 17 is disposed. The lower end of the bracket 30 is formed with a tongue 31 that extends through the aperture 23 and overlies the head 26 of the bushing 24, which is made eccentric relative to the axis thereof. The tongue 31 is held in engagement with the upper edge 32 of the aperture 23 by the head 26 of the bushing 24, thus preventing vertical displacement of the bracket 12. The eccentricity of the head 26 provides a fine vertical adjustment of the motor by releasing the screw 29 and turning the bushing 24 and when locked by the screw 29 in the adjusted position provides a positive stop that prevents vertical displacement of the motor. The bracket 30 may be held against turning by a pair of tongues 33 integral therewith and embracing the opposite edge of the bracket 12.

Numerous alterations of the structure herein disclosed will suggest themselves to those skilled in the art. However, it is to be understood that the present disclosure relates to a preferred embodiment of my invention which is for purposes of illustration only and not to be construed as a limitation of the invention. All such modifications which do not depart from the spirit of the invention are intended to be included within the scope of the appended claims.

Having thus set forth the nature of the invention, what we claim herein is:

1. In a sewing machine having a frame and a main shaft journaled in said frame, a motor having a drive shaft disposed on an axis parallel to the axis of the main shaft, pulleys on said main shaft and said drive shaft, a belt entrained about said pulleys, and means for mounting said motor in said frame for adjustment of said drive shaft relatively to the main shaft to tighten said belt comprising a motor carrying member, means for securing the motor to said motor carrying member, said member having a slot, a fastening element extending through said slot and into said frame for releasably securing said member to said frame, and an eccentric on said fastening element and releasably secured by the same in angularly adjusted position, said eccentric being disposed in operative engagement with said motor carrying member for preventing displacement of said motor away from said

main shaft and thereby defining a stop position and for adjustment of the stop position upon angular adjustment of said eccentric about the axis of said fastening element.

2. In a sewing machine in accordance with claim 1 in which the operative engagement between the motor carrying member and the eccentric is provided by a bracket secured to said motor and having a tongue extending through said slot to overlie said eccentric, said tongue being in engagement on opposite surfaces thereof with the end of said slot and with said eccentric.

References Cited in the file of this patent

UNITED STATES PATENTS

2,318,442	Way et al.	May 4, 1943
2,739,551	Rabezzana	Mar. 27, 1956
3,051,109	Bialy	Aug. 28, 1962

FOREIGN PATENTS

1,032,251	France	Mar. 25, 1953
147,820	Sweden	Nov. 23, 1954