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SUPPORT MEANS FOR ELECTRIC CLUTCH-BRAKE DRIVING DEVICES

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3 Sheets-Sheet 1

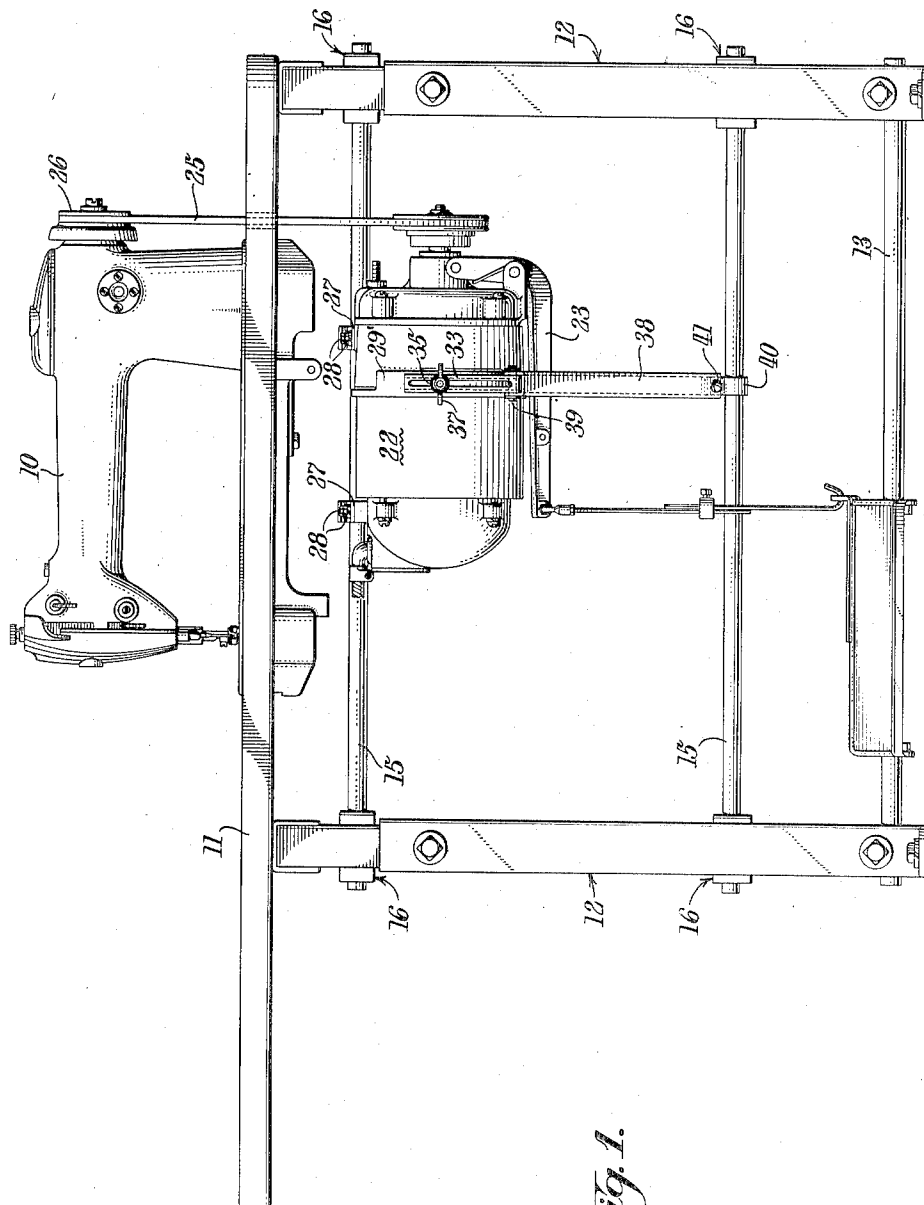


Fig. 1.

WITNESS

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3 Sheets-Sheet 2

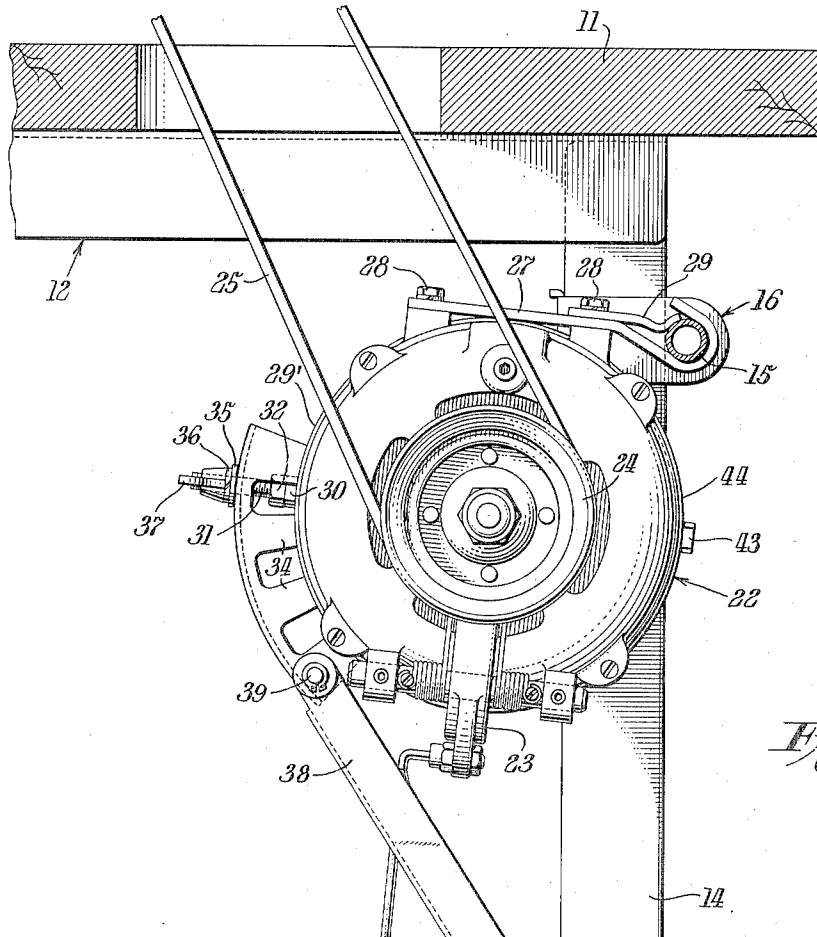


Fig. 2.

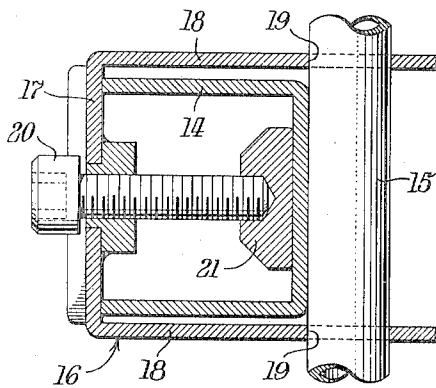
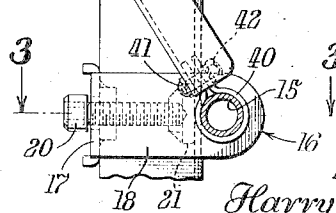


Fig. 3.

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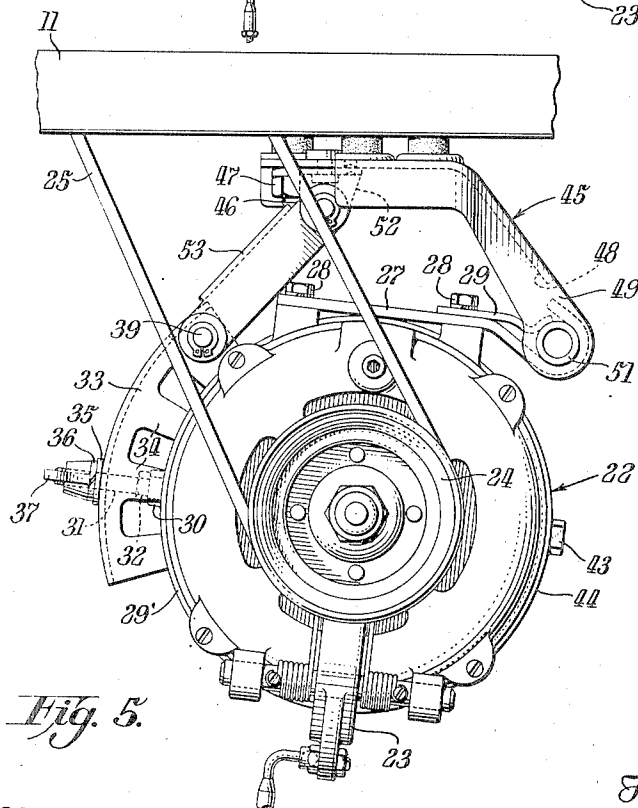
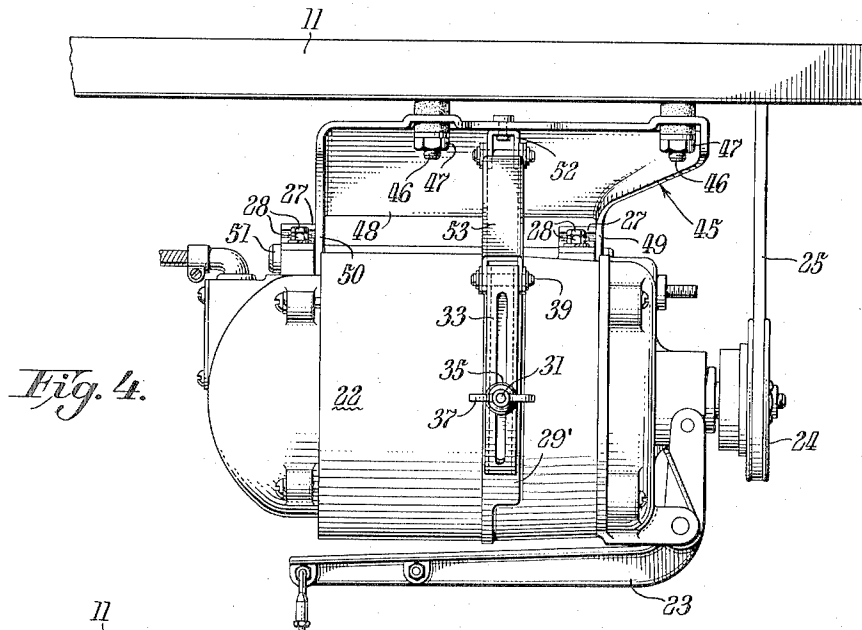
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SUPPORT MEANS FOR ELECTRIC CLUTCH-BRAKE
DRIVING DEVICES

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Application May 1, 1952, Serial No. 285,491

2 Claims. (Cl. 311-16)

This invention relates to electric clutch-brake driving devices for operating sewing machines and more particularly to means for supporting such devices.

An object of this invention is to provide an electric clutch-brake motor supporting device which can be readily adjusted to vary the tension in a driving belt.

Another object of this invention is to provide an electric clutch-brake motor support which can be readily adjusted longitudinally relative to a sewing machine table top.

A further object of this invention is to provide improved means for supporting a clutch-brake motor on a sewing machine table so that the table top can be removed without disturbing the clutch-brake motor support.

Yet another object of the invention is to provide a vibration absorbing mounting for a clutch-brake motor.

A further object of this invention is to provide a transmitter mounting wherein the transmitter can be readily reversed with respect to the table top.

In the drawings, Fig. 1 is a front view in elevation of a first embodiment of the invention showing a sewing machine supporting table having a sewing machine and a transmitter mounted thereon.

Fig. 2 is an end elevational view of the transmitter and transmitter support shown in Fig. 1.

Fig. 3 is a sectional view taken on line 3-3 of Fig. 2.

Fig. 4 is a front elevational view of a transmitter and a modified transmitter support.

Fig. 5 is a right end elevational view of the transmitter and modified support shown in Fig. 4.

Referring more specifically to the drawings, a conventional sewing machine 10 is shown mounted on a supporting table top 11 in the usual manner. Two supporting legs 12 carry the table top 11 and a treadle supporting tube 13. Each supporting leg 12 includes a vertical channel member 14 which serves as the rear support member in each leg 12, as best shown in Fig. 2. The channel members 14 support upper and lower horizontal tubes 15 which are secured to the channel members 14 by special clamps 16, one of which is shown in detail in Fig. 3. Each clamp comprises a U-shaped member 17 having arms 18 which are longer than the cross-sectional depth of the channel member 14. One of the tubes 15 passes through tube receiving apertures 19 formed in the ends of the arms 18 behind the channel member 14. A clamping screw 20 is threaded through the bottom of the U-shaped member 17 and carries a clamping block 21 which is engageable with the bottom web of the channel member. It is apparent that upon tightening the clamping screw 20, the clamping block 21 will engage the channel member 14 and the tube 15 will be drawn firmly against the channel member 14, thus holding the tube 15 securely against vertical and horizontal movement relative to the channel member 14.

The structure described above forms a supporting frame for a transmitter or clutch brake driving device 22 provided with an actuating lever 23 and a driven pulley 24. A belt 25 connects the pulley 24 to a driving pulley 26

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on the sewing machine 10. The transmitter 22 may be of the type disclosed in the copending U. S. patent applications of R. D. Ingalls, Serial No. 285,441, filed on May 1, 1952, and E. P. Turner, Serial No. 285,504, filed on May 1, 1952. Two support plates 27 are fastened to the transmitter 22 by screws 28 and are provided with curved end portions which engage the upper horizontal tube 15. A lock plate 29 associated with each support plate 27 is also fastened to the transmitter by the screws 28 and extends rearwardly to engage the upper horizontal tube 15 and clamp it securely in the curved end portion of the associated support plate 27. The surface of the transmitter is provided with a smooth cylindrical portion 29' broken by a boss 30 which extends radially outwardly from the cylindrical surface portion 29'. A stud 31 is threaded into the boss 30 and is held in place by a lock-nut 32. The stud extends radially outwardly from the cylindrical surface of the transmitter 22 through a slot provided in a curved adjusting member 33. The adjusting member 33 is provided with a plurality of substantially radially extending fingers 34 the inner ends of which are formed to fit the curvature of the cylindrical portion 29' of the transmitter 22. A curved line drawn through the curved surfaces formed on the ends of the fingers 34 forms an arc of a circle having a radius substantially the same as the radius of the cylindrical surface portion 29'. A washer 35, lock washer 36, and a wing nut 37 threaded on the stud 31 hold the adjusting member 33 in the desired position. One end of a connecting link 38 is pivotally connected to the adjusting member 33 by a pivot pin 39. A strap 40 wrapped around the lower horizontal tube 15 is fastened to the lower end of the link 38 by a screw 41 and a nut 42. The adjusting member 33 and the connecting link 38 form an adjustable link connection between the transmitter and the lower tube 15.

From the foregoing description, it is believed that the operation and advantages of this embodiment of the invention will be readily understood. In a sewing machine supporting table it is frequently necessary to change the machine supporting table top in order to accommodate different sizes of sewing machines. Of course, it is desirable that this can be accomplished with a minimum amount of effort and inconvenience. In tables of the type in which the transmitter is supported by the table top and must be removed when the top is removed, there results considerable labor and inconvenience. However, in the present table, the transmitter is supported on the horizontal tubes 15 of the table frame, independently of the table top 11. This construction permits the top 11 to be removed without disturbing the transmitter mounting. In the event that a table top 11 and sewing machine 10 are replaced by a new top 11 and machine 10 which are mounted so that the pulley 26 is not aligned with the transmitter pulley 24, it is only necessary to loosen the screws 28 holding the lock plates 29 and the screw 41 at the end of the link 38. This permits the entire transmitter 22 to be moved parallel to the tubes 15 until the pulleys are again aligned, at which time the screws 28 and 41 are tightened to hold the transmitter in place. In any position of the transmitter on the tubes 15, the tension of the belt 25 is readily adjusted by loosening the wing nut 37 and moving the transmitter 22 about the upper tube 15 as a pivot. When the desired belt tension is obtained, the nut 37 is tightened to hold the adjusting member 33 in place. By providing an extended bearing surface between the fingers 34 of the adjusting member 33 and the surface 29' of the transmitter, an excellent clamping action is obtained. Further, it should be noted that in the event that sufficient adjustment cannot be obtained in the adjusting member 33, the tubes 15 can be moved up or down along the channel members 14 upon loosening the clamps 16 until a suitable position is reached where

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the required belt tension adjustment can be obtained in the adjusting member 33. This feature permits the use of a wide range of machines and belt lengths.

Provision has also been made in this device for mounting the transmitter either in the position shown in Fig. 1 or in a reversed position with the pulley 24 at the left end of the table top 11, as viewed in Fig. 1. A second tapped boss 43 and cylindrical surface portion 44 are provided on the transmitter 22 approximately diametrically opposite to the boss 30. When it is desired to mount the transmitter 22 in the reversed position, the stud 31 is removed from the boss 30 and inserted in the boss 43. The support plates 27 are reversed so that the curved portion extends over the side of the transmitter carrying the boss 30. With these simple adjustments made, the support plates 27 are again secured to the upper tube 15 and the adjusting member 33 is clamped over the stud 31 as previously described. In this reversed position, the transmitter functions as before and all adjustments can be made as described above.

One important feature of this device is the vibration dampening effect of the tube mounting for the transmitter 22. The tubes 15 are relatively long and flexible. Since the transmitter 22 is fastened only to the tubes 15, most of the vibration of the transmitter is absorbed by the tubes 15 and is not transmitted to the legs 12 and table top 11. In transmitter supports wherein the support is fastened directly to a wooden table top, the latter forms a very effective sounding board, tending to amplify any vibration noise produced in the transmitter. In my preferred construction, any transmitter vibrations are practically completely dampened by the tubes 15.

In Figs. 4 and 5, I have shown a modified form of my invention which can be used in the event it is desired to fasten a transmitter support to a table top. Many of the parts used in this form of the invention are the same as those used in the embodiment shown in Figs. 1, 2 and 3, and have been identified by the same numerals. In this construction, a support bracket or frame 45 is fastened directly to the table top 11 by bolts 46 and nuts 47. The bracket 45 is provided with a downwardly and rearwardly extending portion 48 having depending side flanges 49 and 50. A support tube 51 is carried by the flanges 49 and 50 and extends beyond the left side of the bracket 45, as viewed in Fig. 4. The support plates 27 and lock plates 29, which engaged the upper tube 15 in the first modification, engage the tube 51 in a similar manner. A pivot bracket 52 is fastened to the support bracket 45 and pivotally carries a short connecting link 53. The lower end of the short connecting link 53 is pivotally fastened to the adjusting member 33 by the pivot pin 39.

This construction provides the same convenient belt tension adjustment which is provided in the primary modification and also provides the same secure clamping action between the adjusting member 33 and the transmitter 22. In both constructions it is only necessary to loosen the wing nut 37 for all ordinary belt tension adjustments. In addition, the simplified construction of both support structures permits a transmitter equipped for one type of mounting to be readily converted to the other type of

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mounting with only a minimum number of parts to be changed.

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

1. A support for an electric power transmitter provided with a casing having a substantially cylindrical portion comprising a support frame including a flexible support tube, a support plate fastened to said cylindrical portion and means connecting said plate to said tube for adjustment angularly relative to said tube, an adjusting member having an elongated slot and a plurality of radially inwardly extending fingers, the free ends of said fingers being formed to the curvature of said cylindrical casing portion, means releasably securing said adjusting member to said cylindrical portion with said fingers in frictional engagement with said cylindrical casing portion to prevent sliding of said adjusting member relative to said cylindrical casing portion, said means comprising a radially outwardly extending boss on the periphery of said cylindrical casing portion, a threaded stud extending outwardly of said boss through the slot in said adjusting member, and a threaded element cooperating with said stud to clamp said adjusting member against the periphery of the cylindrical casing portion, and a link carried by said support frame and pivotally connected to said adjusting member.

2. A support for an electric power transmitter provided with a casing having a substantially cylindrical portion comprising a support frame including two spaced pairs of interconnected vertical supporting legs for supporting a sewing machine table top and two horizontal flexible support tubes of circular cross section connecting together said pairs of legs, adjustable fastening means securing said tubes to said legs, a support plate secured to said cylindrical portion of the casing and means connecting said plate to one of said tubes for adjustment angularly relative to said tube, an adjusting member having an elongated slot and a curved portion bearing on said cylindrical portion of said casing, clamping means extending through the slot in said adjusting member and securing said member to said casing, and a connecting link having one end pivotally fastened to said adjusting member and the other fastened to the other of said support tubes.

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