Jan. 26, 1937. W. J. PEETS 2,068,929

POWER TRANSMITTER

Original Filed July 27, 1935 2 Sheets-Sheet 1

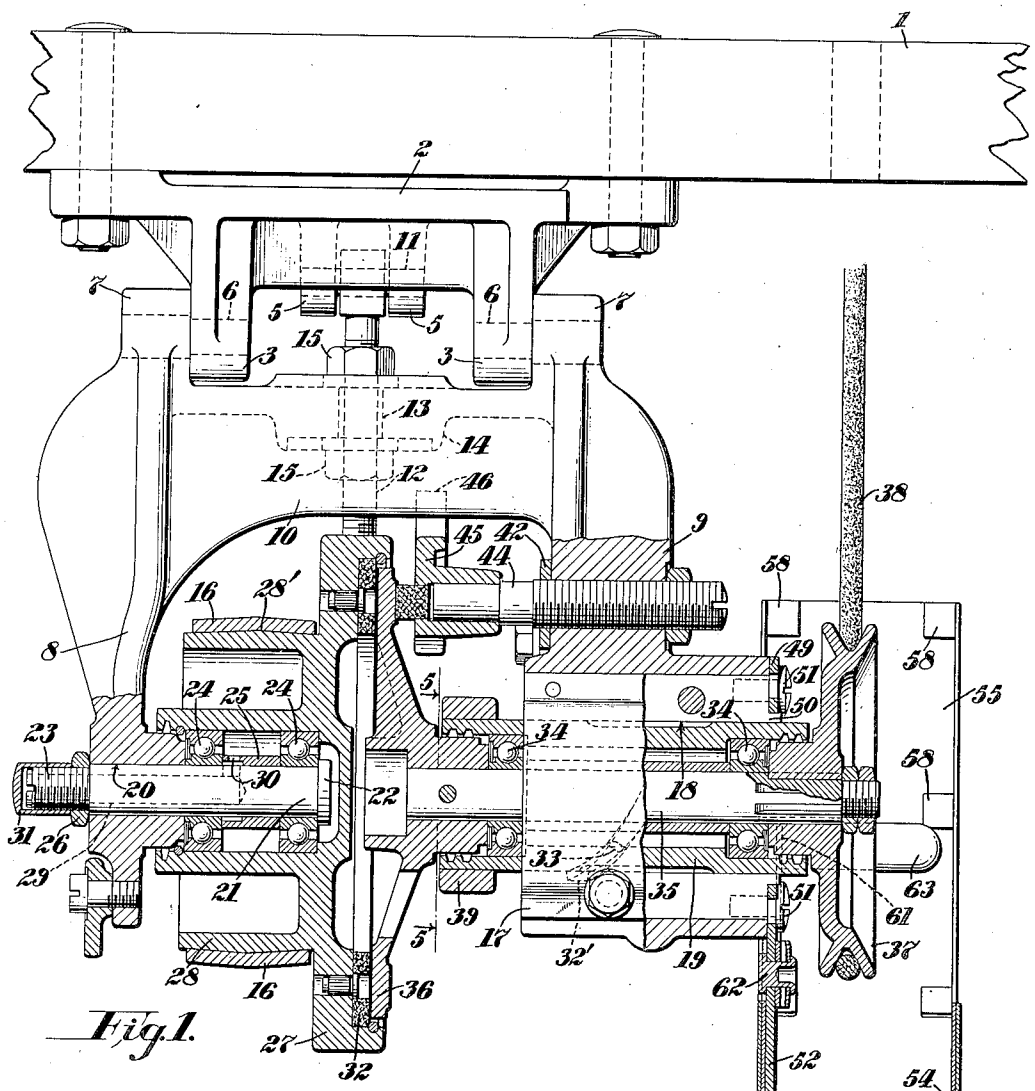


Fig. 1.

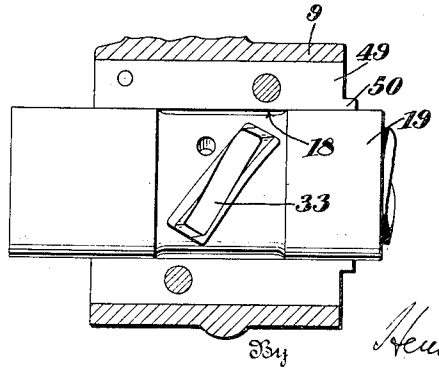


Fig. 2.

Witness:
John N. Cave

Inventor
Wilbur J. Peets

By Henry J. Miller
Attorney

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POWER TRANSMITTER

Original Filed July 27, 1935 2 Sheets-Sheet 2

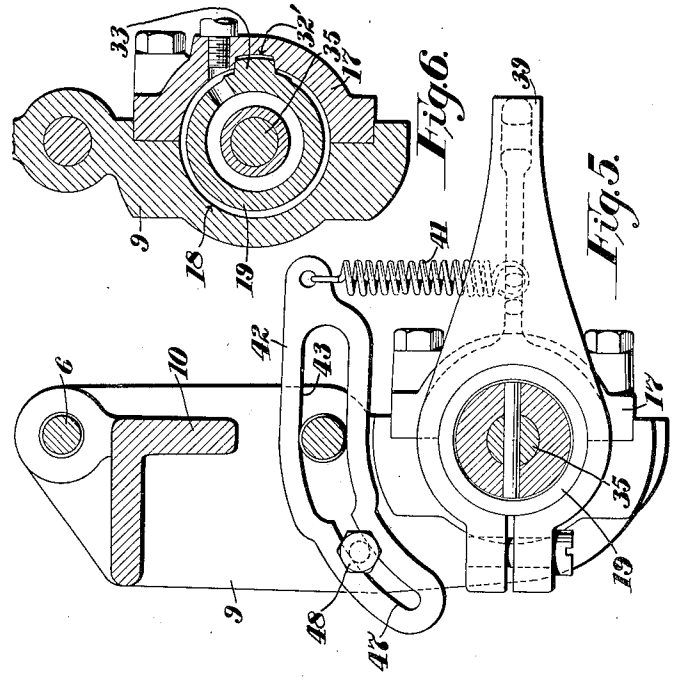


Fig. 6.

Fig. 5.

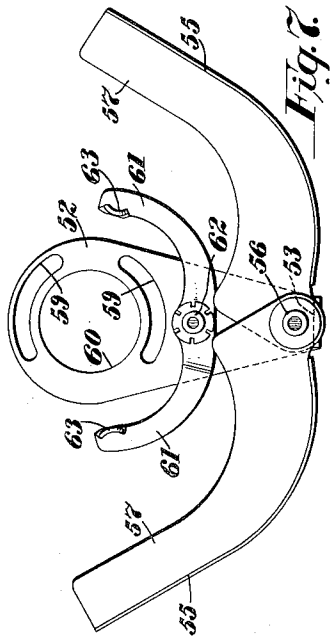


Fig. 7.

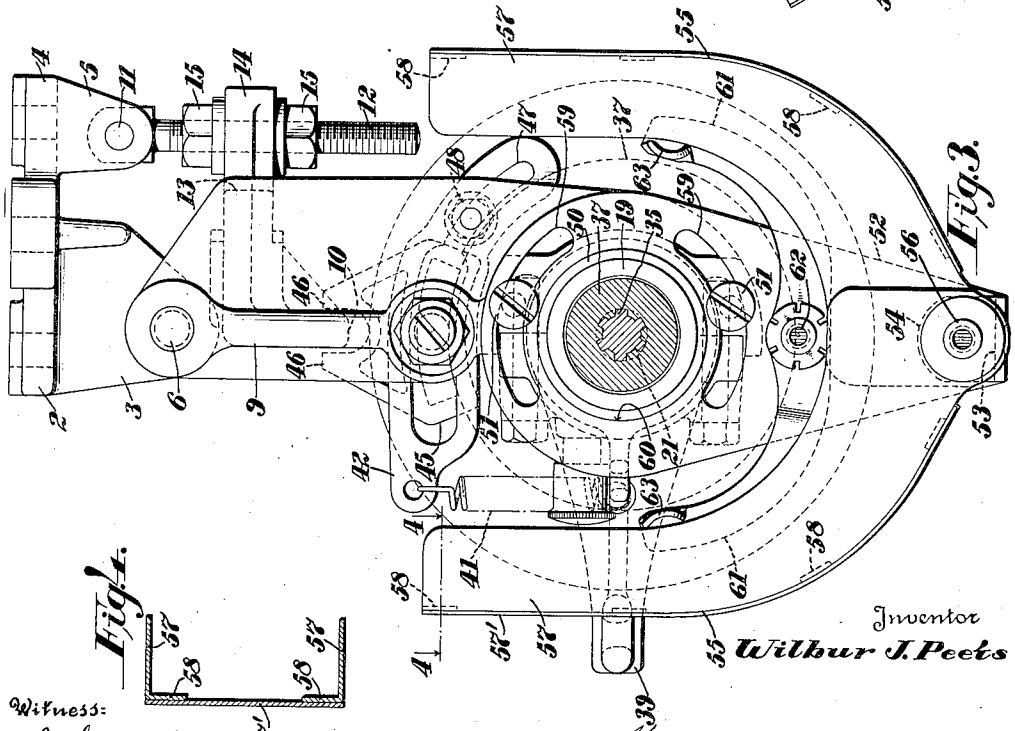


Fig. 3.

Fig. 4.

Witness:
John N. Cave

Inventor
Wilbur J. Peets

By Henry J. Mica
Attorney

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UNITED STATES PATENT OFFICE

2,068,929

POWER-TRANSMITTER

Wilbur J. Peets, Elizabeth, N. J., assignor to The Singer Manufacturing Company, Elizabeth, N. J., a corporation of New Jersey

Original application July 27, 1935, Serial No. 33,547. Divided and this application October 5, 1935, Serial No. 43,661

3 Claims. (Cl. 192—18)

This invention relates to treadle-controlled power-transmitters such as are customarily used on sewing machine power-tables to enable the individual sewing machine operators to start, stop and control the speed of the respective sewing machines which are driven by power from a line-shaft running lengthwise of the power-table; there being a power-transmitter disposed intermediate each individual sewing machine and the power-table line-shaft.

A power transmitter of the type in question commonly comprises a live friction clutch-disk which is belt-connected to the line-shaft and runs continuously. A driven clutch-disk and belt-pulley is arranged to be shifted by a treadle connection into and out of driving relation with the live clutch-disk; the last mentioned pulley being belted to the sewing machine.

The present invention has for an object to provide a heavy duty power-transmitter of the type in question which is of simple and inexpensive construction and which may be safely operated without tiring effort by the operator.

Another object of the invention is to provide the transmitter with suitable adjustments facilitating its installation with power-tables and sewing machines of various types. Further, the invention has for an object to provide a power-transmitter which is easy to assemble and take apart. Still further, the invention has for an object to provide the transmitter with a simple, efficient and practical guard for the belt-pulley running to the machine to be driven.

With the above and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations and arrangements of parts hereinafter set forth and illustrated in the accompanying drawings of a preferred embodiment of the invention, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

In the accompanying drawings Fig. 1 is a front elevation, partly in section, of a power-transmitter embodying the invention. Fig. 2 is a side view of the bearing sleeve for the shaft-connected driven clutch and belt-pulley elements of the transmitter. Fig. 3 is an end elevation of the transmitter. Fig. 4 is a section on the line 4—4, Fig. 3. Fig. 5 is a section on the line 5—5, Fig. 1. Fig. 6 is a transverse section through the split bearing for the driven elements of the transmitter and Fig. 7 is a view of the transmitter belt-guard.

As disclosed in my copending application Serial No. 33,547, filed July 27, 1935, of which this application is a division, 1 represents the top board of a conventional sewing machine power-table to which is bolted the supporting bracket 2 having spaced downwardly extending ears 3, 3 and a rearward extension 4 having spaced downwardly extending ears 5, 5.

Fulcrumed in the ears 3, 3 are the alined pivot-studs 6, 6 projecting inwardly from the upwardly extending ears 7, 7 of the inverted U-shaped transmitter frame including the spaced downwardly extending arms 8, 9 connected at their upper ends by the cross-bar 10 which is of inverted L-shaped section, as shown in Fig. 5.

Pivotally hung at 11 from the ears 5 is the screw-threaded rod 12 which passes through the slot 13 in a rearwardly extending portion 14 of the cross-bar 10 and is adjustably clamped to the portion 14 by the top and bottom adjusting and clamping nuts 15. The purpose of this adjustment is to swing the transmitter frame about its pivots 6, 6, to properly tension the flat belt 16 which drives the transmitter from the usual power-table line-shaft (not shown).

The arm 9 of the transmitter frame is provided at its lower end with a split bearing including a removable side bearing cap 17; the split bearing being bored out horizontally at 18 to form a bearing for the rotatable and endwise slidable sleeve 19 to be described. The arm 8 of the transmitter frame is bored out at 20 strictly coaxial with the bearing bore 18.

Mounted in the bore 20 of the arm 8 is the stationary cylindrical stud 21 having a head 22 and a threaded extremity 23. Assembled on the stud 21 are the spaced conventional ball-bearings 24, 24 and intermediate spacing sleeve 25; the inner race members of the ball-bearings together with the sleeve 25 being clamped between the head 22 of the stud 21 and the arm 8 by means of the clamping nut 26. The ball-bearings 24, 24 carry the live clutch-disk 27 which is formed with a pulley 28 for the driving belt 16; the center line or crown 28' of the pulley 28 being disposed substantially centrally of the space between the ball-bearings 24 to evenly distribute the pull of the belt 16 between the ball-bearings. The stud 21 and sleeve 25 are provided with lubricant ducts 29, 30, respectively, through which lubricant may be injected into the ball-bearing cavity within the pulley 28 by means of the grease-cup 31 screwed onto the threaded end 23 of the stud 21. The live clutch-disk 27 is faced with a suitable friction-clutch-facing 32.

The removable cap 17 of the split bearing car-

ried by the arm 9 of the transmitter frame is formed in its bearing face with a helical groove 32′ to receive the helical thread 33 on the sleeve 19; this construction being like that disclosed in the Peets et al. Patent No. 2,004,055, dated June 4, 1935.

Journaled on ball-bearings 34 in the sleeve 19 is the shaft 35 connecting the driven clutch-disk 36 and belt-pulley 37 carried at the opposite ends of such shaft; the pulley 37 being connected by the belt 38 to the machine to be driven. Clamped to the inner end of the sleeve 19 is the radial clutch-operating arm 39 to be connected by the usual treadle-rod (not shown) to an operating treadle. The arm 39 is also connected by the recovery spring 41 to a spring-anchorage arm 42 having a slot 43 embracing the supporting screw 44 for the brake-shoe 45 which is prevented from turning on the screw 44 by means of the upwardly projecting ears 46 at opposite sides of the cross-bar 10. The spring anchorage arm 42 is, in part, curved concentrically with the axis of the shaft 35 and the slot 43 is similarly curved and has a terminal portion 47 of reduced width entered by a clamping screw 48. Thus the anchor arm 42 may be circularly adjusted on the transmitter frame arm 9 to suit the operative position of the radial arm 39 relative to the sleeve 19. The advantages of this construction are fully explained in said Patent No. 2,004,055.

The split bearing for the sleeve 19 is formed with an annular end face 49 and a circular rib 50 projecting from the plane thereof. Secured to the split-bearing end-face 49 by screws 51 is the upper ring-like end of a pulley-guard supporting arm 52 bent at its lower end to provide a horizontal portion 53 and a short offset vertical portion 54 spaced from the long or main vertical portion of the arm. A pair of trough-shaped guard members 55 for the pulley 37 and belt 38 are frictionally pivoted at 56 on the arm 52 and its short offset terminal portion 54. Each guard member 55 comprises two similar edgewise curved side elements 57 having tongues 58 bent at right angles to the plane of the respective side section 57. A flatwise curved element 57′ is spot-welded to the tongues 58 of the side sections, as shown in Fig. 4. These guard members 55 may be adjusted independently of one another about their common pivotal axis 56, and the arm 52 may be circularly adjusted about the axis of the pulley 37; the arm 52 having arcuate slots 59 therein for the fastening screws 51. The rib 50 freely fits the large circular aperture 60 in the arm 52 and provides a bearing about which the entire pulley guard assembly may be adjusted. A pair of belt-retainer arms 61 are coaxially frictionally pivoted at 62 on the arm 52 and have angularly bent terminal portions 63 which extend across the grooved face of the belt-pulley 37 and prevent the belt 38 from dropping out of the pulley groove when such belt is removed for any purpose from the pulley of the machine being driven.

The invention is not to be understood as limited to the details of construction and relative arrangements of parts of the particular embodiment of the invention shown and described, as various modifications of such details and relative arrangements of parts may obviously be made by those skilled in the art within the scope of the invention.

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

1. A power-transmitter comprising a transmitter frame having downwardly extending arms formed at their lower ends with coaxially bored apertures, a stationary stud-pin received in the aperture of one of said arms and having at its inner end a head disposed between said arms, a pair of conventional ball-bearings mounted on said stud-pin, said ball-bearings each having inner and outer race rings and a series of balls between such rings, a spacing sleeve on said stud between the inner race rings of said ball-bearings, means for tightening the head of said stud against the inner race ring of the adjacent ball-bearing, a combined live clutch-disk and belt-pulley mounted on the outer race rings of said ball-bearings, connected driven clutch-disk and belt-pulley elements journaled in the other of said frame arms with their axis coaxial with the aperture of said last mentioned arm, and manually controlled means for establishing and interrupting driving relation between said driving and driven clutch elements.

2. A power-transmitter comprising a transmitter frame having downwardly extending arms formed at their lower ends with coaxially bored apertures, a stationary stud-pin received in the aperture of one of said arms and having at its inner end a head disposed between said arms, a pair of conventional ball-bearings mounted on said stud-pin, said ball-bearings each having inner and outer race rings and a series of balls between such rings, a spacing sleeve on said stud between the inner race rings of said ball-bearings, means for tightening the head of said stud against the inner race ring of the adjacent ball-bearing, a combined live clutch-disk and crowned flat-belt pulley mounted on the outer race rings of said spaced ball-bearings with the crown of said pulley in a plane substantially midway between said ball-bearings, connected driven clutch-disk and belt-pulley elements journaled in the other of said frame arms with their axis coaxial with the aperture of said last mentioned arm, and manually controlled means for establishing and interrupting driving relation between said driving and driven clutch elements.

3. A power-transmitter comprising a transmitter frame having spaced downwardly extending free-ended arms formed with coaxially bored apertures, a stationary stud-pin fixed in one of said apertures and carried solely by one of said arms, ball-bearings carried by said stationary stud-pin, a combined live clutch-element and belt-pulley journaled on said ball-bearings, a rotary shaft journaled in and coaxial with the other of said apertures and carried solely by the other of said arms, said shaft and stud being disposed in non-overlapping end-to-end coaxial relationship, driven clutch and belt-pulley elements carried at opposite ends of said shaft, and manually operated means for establishing and interrupting driving relation between said live and driven clutch-elements.

WILBUR J. PEETS.