April 22, 1930. G. M. EAMES ET AL 1,755,637

POWER TRANSMITTER SUPPORT

Filed Aug. 27, 1928 2 Sheets-Sheet 1

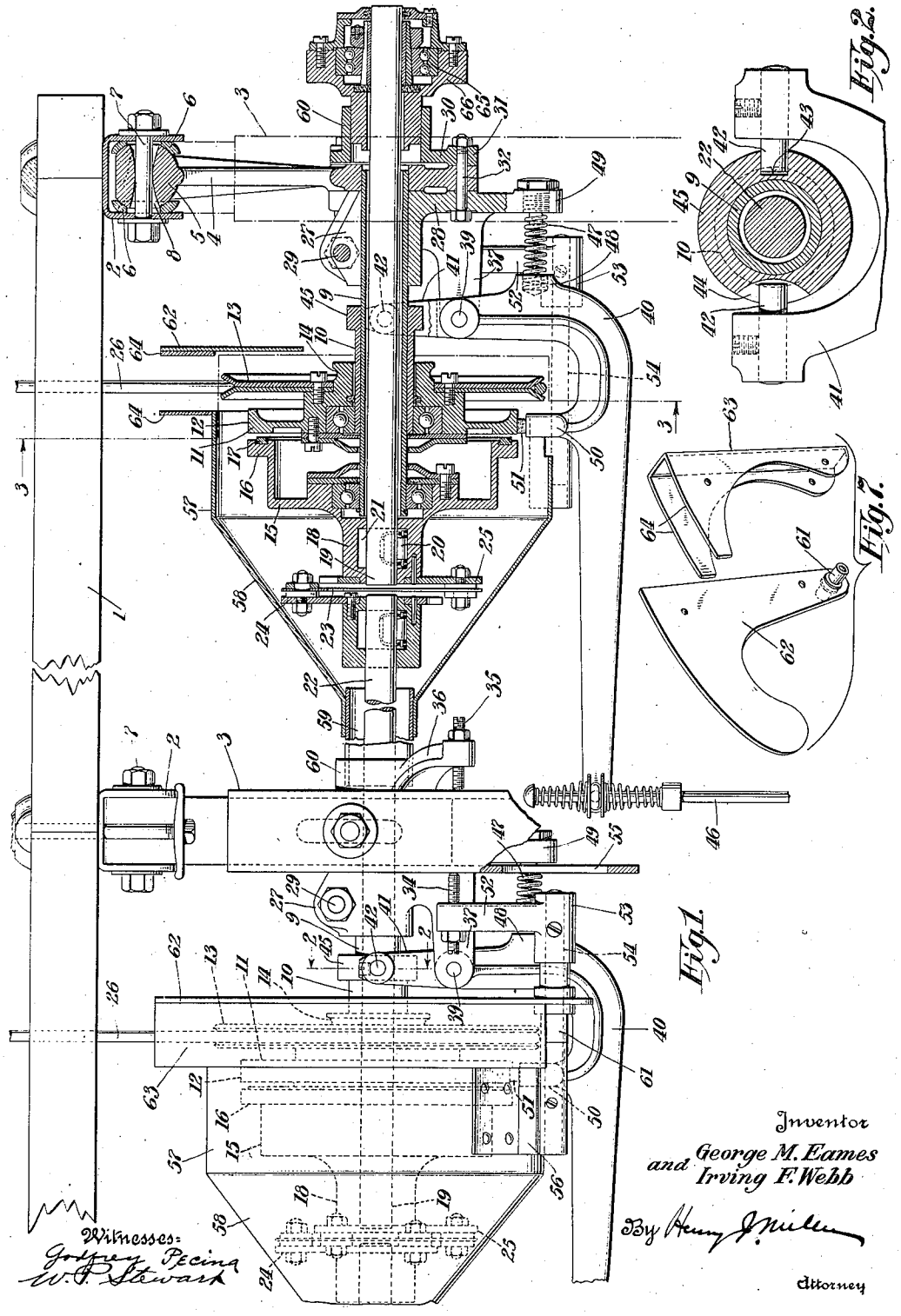


Fig. 1.

Fig. 2.

Fig. 3.

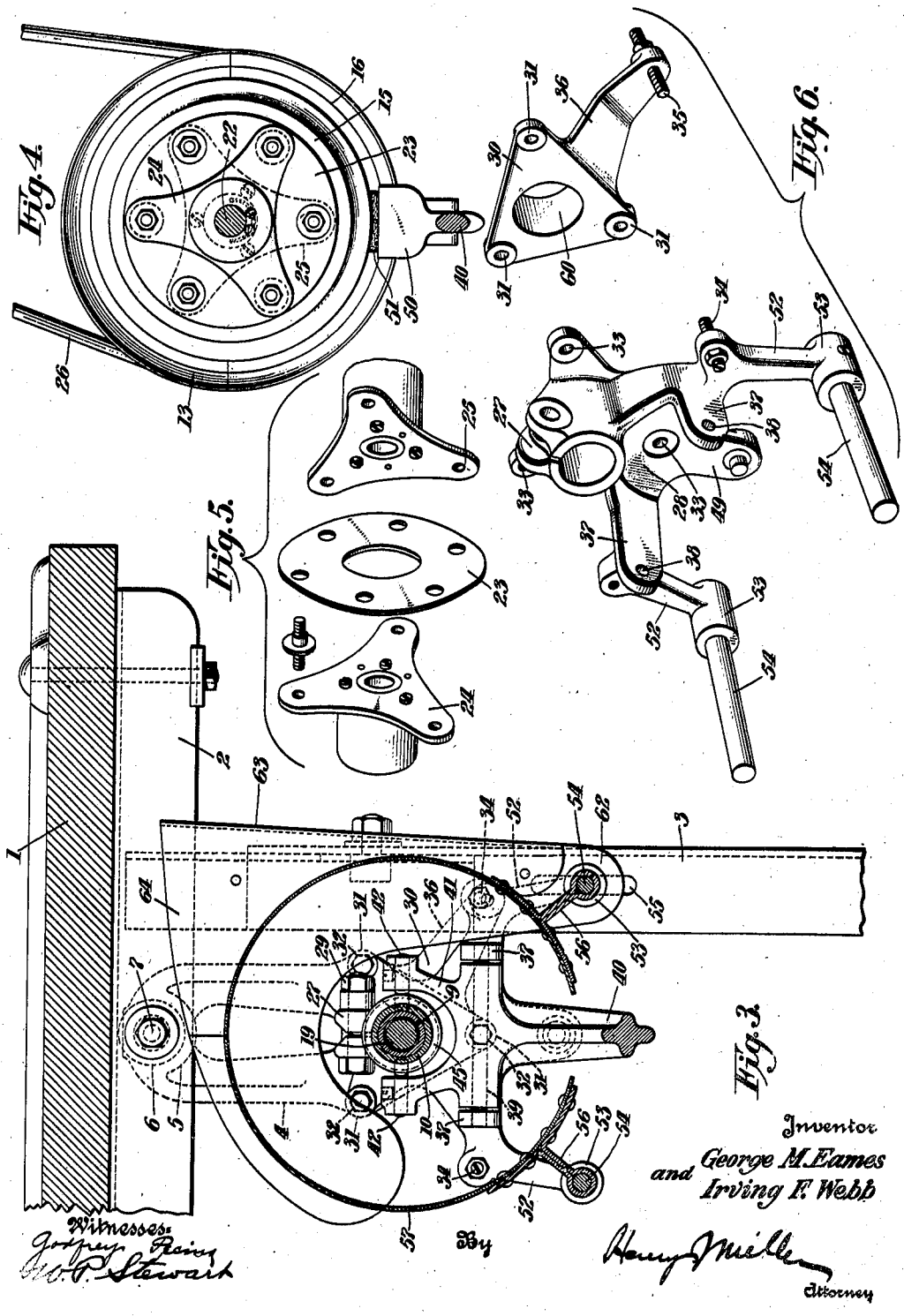
Witnesses:
Godfrey Pecina
W. F. Stewart

Inventor
George M. Eames
and Irving F. Webb
By Henry J. Miller
Attorney

April 22, 1930. G. M. EAMES ET AL 1,755,637

POWER TRANSMITTER SUPPORT

Filed Aug. 27, 1928 2 Sheets-Sheet 2



Patented Apr. 22, 1930 1,755,637

UNITED STATES PATENT OFFICE

GEORGE M. EAMES, OF BRIDGEPORT, CONNECTICUT, AND IRVING F. WEBB, OF ELIZABETH, NEW JERSEY, ASSIGNORS TO THE SINGER MANUFACTURING COMPANY, OF ELIZABETH, NEW JERSEY, A CORPORATION OF NEW JERSEY

POWER-TRANSMITTER SUPPORT

Original application filed May 27, 1925, Serial No. 33,261, and in Great Britain August 11, 1925. Divided and this application filed August 27, 1928. Serial No. 302,208.

This invention relates to improvements in supports for power-transmitters more particularly of the type employed for driving sewing machines placed upon a sectional power-table, below the table-top of which a plurality of power-transmitters are successively disposed.

The objects of the present invention are to facilitate installation in factories of sectional power-table outfits and to standardize power-transmitter supporting means whereby the parts thereof may be interchangeably employed for left hand and right hand transmitters, including the power-transmitter guards.

In a preferred embodiment of the invention, the present improved supporting means is employed in connection with the "safety-table" type of power-transmitters in which relatively shiftable driving and driven clutch-members are rotatably journaled upon a bearing sleeve sustained by a hanger depending from the table-top or its supporting standard. In the present construction, the hangers are each secured for universal adjustment upon the table-supporting end-rails, and driving-shaft sections are disposed within but free of the bearing-sleeves sustained by the hangers, adjacent shaft-sections being connected by a flexible coupling which constitutes a support for one end of the shaft-sections. The other ends of the shaft-sections are journaled upon the bearing-sleeves through the intermediary of the driving clutch-members.

In order to secure the hangers so that the bearing-sleeves carried thereby are in substantial alinement, complemental bracket-members are interchangeably secured upon opposite sides of the free end of each hanger, said bracket-members being provided with adjusting screws engaging opposite sides of a table-supporting standard. One of the bracket-members has a split hub clamped upon the bearing-sleeve and affords a fulcrum for an angular clutch-shifting lever of which the treadle-actuated arm is disposed directly below the bearing-sleeve in the vertical plane thereof. Said bracket-member furthermore is formed with depending arms symmetrically disposed at opposite sides of the bearing-sleeve, which arms constitute supporting means for one end of a transmitter- and shaft-guard. The other end of said guard is supported by an apertured boss of the complemental bracket-member of the hanger for the next power-transmitter. The symmetrical arrangement of the parts in the present supporting means permits of reversibly supporting each complete transmitter upon or with its hanger without changing the construction of the parts, thereby providing a standard construction capable of meeting the requirements of both left and right hand transmitters.

In the accompanying drawings, Fig. 1 is a view in elevation and partly in section of a portion of a power-table constituting a preferred embodiment of the present improvement, the table being broken to more closely group the adjacent transmitters. Fig. 2 is a view substantially on the line 2—2 of Fig. 1. Fig. 3 is a view substantially on the line 3—3 of Fig. 1. Fig. 4 is an elevation of a transmitter as viewed from the left in Fig. 1, the transmitter guard being omitted. Fig. 5 is a perspective view of the shaft-coupling, with the parts thereof in detached relationship. Fig. 6 comprises perspective views of the complemental bracket-members for supporting the clutch-shifting lever and the transmitter-guard. Fig. 7 is a perspective view of the parts of the pulley-guard shown in detached relationship.

Referring to the drawings, to the under side of a sectional machine-supporting table 1 are suitably clamped inverted U-shaped rails, as 2, sustained by the two-part standards 3 which are vertically adjustable for raising and lowering the table 1. This supporting means for the table is more completely disclosed in a patent of G. M. Eames, No. 1,695,419, dated Dec. 18, 1928.

Each of the rails 2 may support one or more depending hangers 4 in a manner providing for a universal positioning movement of the free end of the hangers. For this purpose, the upper end of each hanger is formed with a rounded head 5, between which and the depending members of a rail 2 are interposed

concave-faced washers 6. The head 5 is pivotally supported upon a rail 2 in reversible position by a bolt 7, passing through an aperture 8 in the hanger-head and through enlarged apertures in the washers 6.

Each hanger 4 has a transverse aperture at its free end to receive the end of a substantially horizontal bearing-sleeve 9 projecting from the hanger at one side thereof. Each bearing-sleeve constitutes supporting means for a sectional driving-shaft and the driving and driven clutch-members of a power-transmitter. As the present invention is not confined to the details of construction of the power-transmitter itself and as a complete disclosure of the transmitter was made in our Patent No. 1,688,414, dated Oct. 23, 1928, of which the present application is a division, only a general reference will be herein made to the transmitter elements.

Slidingly disposed upon the bearing-sleeve 9 is a shift-sleeve 10 upon which is suitably journaled a driven clutch-member 11 having a widened periphery 12 to serve as a brake-engaging surface. Detachably secured upon the clutch-member 11 is a belt-pulley 13, the hub of said clutch-member 11 being provided with a belt-groove 14 for the employment, if desired, of an extremely small pulley. Journaled upon the bearing-sleeve is a driving clutch-member 15 formed with a flanged rim 16 faced with a suitable friction-ring 17, said rim having sufficient weight to give to the driving clutch-member the effect of a fly-wheel. The hub 18 of the driving clutch-member projects beyond the free end of the bearing-sleeve 9 to receive an end of a sectional driving-shaft section 19 disposed within the bearing-sleeve but free of contact therewith. Any suitable means may be employed to secure the end of a driving-shaft section within the hub 18, the form of securing means shown in the drawings comprising a well known clutch-coupling 20 disposed within a recess 21 in the hub 18.

The shaft-section 19 is flexibly coupled with the opposite end of an adjacent shaft-section 22, of which the other end is supported by a driving clutch-member of an adjacent table section in the same manner as described in connection with the shaft-section 19 and hub 18. The flexible coupling referred to comprises a flexible disk or disk-ring 23 upon opposite sides of which are bolted the arms of multiple-armed spiders 24 and 25, the spider 25 being secured upon the driving clutch-member hub 18 and the spider 24 being suitably fixed upon the adjacent end of the shaft-section 22. It is to be understood that the described power-transmitter construction is duplicated in the successive transmitters usually employed for each table-section of a sectional power-table, with the exception that the outer end of the end driving-shaft section is journaled in a bearing sustained directly by the end hanger, as will be later described. Any driven clutch-member pulley 13 may be readily replaced by a pulley of different diameter, or as above indicated the clutch-member hub 14 may serve as a pulley, the selected pulley being embraced by the usual machine-driving belt 26.

Referring now more particularly to the present invention, means are provided for readily securing the shaft-hangers in positions in which the bearing-sleeves carried by said hangers are in substantial alinement, the hanger-securing means being so constructed as to afford supports for guards for the driving-shaft sections and power-transmitters, and also for the several clutch-shifting levers.

The split hub 27 of a bracket-member 28 is clamped by a screw-bolt 29 upon a bearing-sleeve 9 at one side of each hanger. Disposed at the opposite side of each hanger is a complemental bracket-member 30 having triangularly arranged, apertured bosses, as 31, entered by bolts, as 32, passing through suitable apertures in the hanger and through similarly arranged apertures, as 33, in the bracket-member 28. This construction provides for firmly securing said bracket-members upon opposite sides of the hanger. Threaded into apertured ears in the bracket-member 28 are adjusting screws, as 34, one of which engages one side of a table-standard 3, the other screw 34 being employed for the same purpose when the transmitter is reversed. The opposite side of the standard 3 is engaged by an adjusting screw 35 threaded into an arm 36 integral with the bracket-member 30. By manipulating said adjusting screws 34 and 35, the free end of a hanger 4 may evidently be readily adjusted to aline the bearing-sleeve thereof with the other bearing-sleeves and be firmly secured to the table standard in adjusted position.

The bracket-member 28 is formed with horizontally disposed arms, as 37, projecting from the hanger in the same direction as its bearing-sleeve and located at substantially equal distances from said bearing-sleeve. The arms 37 are provided with alined apertures, as 38, entered by a fulcrum-pin 39 of an angular shift-lever 40 having an upwardly disposed fork 41 in the spaced arms of which are secured trunnions, as 42. One of the trunnions 42 enters an aperture 43 and the other a segmental slot 44 formed in opposite sides of a flange 45 on the shift-sleeve 10, the spaced arms of the fork 41 being disposed at opposite sides of the flange 45. The lower arms of the angular shift-lever 40 extends in the same direction as the free end of the bearing-sleeve and underlies said bearing-sleeve in substantially the same vertical plane. The free end of the shift-lever 40 is yieldingly connected with a treadle-actuated rod 46, and a spring 47 is interposed between a socketed

boss 48 of said lever and a depending arm 49 on the bracket-member 28. The lever 40 has an upstanding lug 50 provided in its upper face with a brake-material 51 adapted to frictionally engage the periphery 12 of the driven clutch-member.

Depending from each bracket-member 28, in equal distances at opposite sides of its bearing-sleeve are arms, as 52, terminating in apertured bosses, as 53, in each of which is secured a guard-supporting rod 54. In the installation of a transmitter equipment, one of said rods 54 is brought into alinement with a vertical slot 55 provided in the standard 3, whereby the position of the bearing-sleeve is accurately located laterally. Slidingly fitted upon the rods 54 are apertured supporting-legs, as 56, projecting from the cylindrical portion 57 of a shield or guard surrounding the driving and driven clutch-members. The underside of the shield-portion 57 is slotted to provide clearance for the brake-lever lug 50, said shield-portion 57 being preferably integral with a conical guard or shield 58 surrounding the shaft-coupling. Fitted into the reduced end of the guard 58 is one end of a tube or shaft-guard 59 of which the opposite end is embraced by a cylindrical boss 60 on the bracket-member 30 of the next table-section transmitter-hanger.

Interposed between one of the guard or shield legs 56 and a boss 53 of a bracket-arm 52 is the hub 61 of a supporting guard-member 62 to which is detachably secured a belt-guard 63 having similarly shaped, spaced segmental side-walls 64, one of which overlies the cylindrical portion 57 of the transmitter-shield. Either of the side-walls 64 may obviously be secured upon the guard 62 according to whether it is to be used with a right or left-hand transmitter.

It will be understood from the foregoing description that a bearing-sleeve carrying the clutch-elements may project from either side of its hanger and that without any change in construction the bracket-members 28 and 30 may be interchangeably secured at opposite sides of a hanger, according to whether it is desired to employ a left-hand or a right-hand transmitter.

The shaft-section 19 is in the drawings shown as the end section of the driving-shaft, i. e., the short shaft-section at the end of the table. While this short section is supported at one end by a driving clutch-member, the other end is sustained by a ball-bearing 65 carried by a journal-box 66 sustained by the boss 60 of the end bracket-member 30.

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

1. A power-table having table-top supporting standards, a depending hanger below the table-top, a universal support for the upper end of the hanger, a bearing-sleeve carried by the hanger, a power-transmitter sustained by said bearing-sleeve, a bracket-member secured upon one side of the hanger having a hub embracing said bearing-sleeve, a complemental bracket-member secured upon the opposite side of said hanger, and means carried by said bracket-members for adjusting the hanger upon its universal support.

2. In a power-table including a plurality of table-supporting standards, a plurality of hangers, a universal support for each of the hangers adjacent a table-standard, a bearing-sleeve sustained by each of the hangers, a power-transmitter sustained by each of the bearing-sleeves, complemental bracket-members secured upon each of said hangers upon opposite sides thereof, means interposed between complemental bracket-members and the standard adjacent thereto for angularly adjusting a hanger upon its universal support, and a power-transmitter guard supported at one end by a bracket-member of one of said hangers and at its opposite end by the complemental bracket-member of the adjacent hanger.

3. A power-table having table-top supporting standards, a hanger below the table-top, a pivotal support for the hanger, a bearing-sleeve extending laterally from said hanger, a clutch-type power-transmitter sustained by said bearing-sleeve, a bracket-member secured upon the hanger, hanger-adjusting means carried by said bracket-member engaging a table-standard, means for securing the hanger in adjusted position, and an angular clutch-shifting lever pivotally supported by said bracket-member, said lever having one arm disposed in substantially the vertical plane containing the longitudinal center line of the bearing-sleeve.

4. A power-table having table-top supporting standards, a hanger, a universal support for one end of the hanger, a bearing-sleeve extending laterally from said hanger, a power-transmitter sustained by said bearing-sleeve, a bracket-member secured upon the bearing-sleeve having legs disposed symmetrically upon opposite sides of the bearing-sleeve, a power-transmitter guard sustained at one end by said bracket-member legs, means for supporting the other end of said guard, and hanger-adjusting means interposed between said bracket-member and one of said supporting standards.

5. A power-table having table-top supporting standards, a hanger, a bearing-sleeve extending laterally from said hanger, a clutch-type power-transmitter sustained by said bearing-sleeve, a bracket-member secured upon said hanger having legs disposed symmetrically upon opposite sides of the bearing-sleeve, a power-transmitter guard sustained at one end by said bracket-member legs, means for supporting the other end of said guard, and an angular clutch-shifting lever pivotally supported by said bracket-

member, said lever having one arm disposed below the bearing-sleeve in substantially the vertical plane containing the longitudinal center line of said bearing-sleeve.

6. A power-table having table-top supporting standards, a plurality of hangers, a universal support for each of the hangers, a bearing-sleeve extending laterally from each of the hangers, a power-transmitter sustained by each bearing-sleeve, complemental bracket-members secured upon each hanger at opposite sides thereof, means interposed between complemental bracket-members and the standard adjacent thereto for angularly adjusting a hanger upon its universal support, and a power-transmitter guard supported at one end by a bracket-member of one of said hangers and at its opposite end by the complemental bracket-member of an adjacent hanger.

7. A sectional power-table having a plurality of table-supporting standards, a plurality of hangers, a bearing-sleeve extending laterally from each hanger, means for reversibly supporting each hanger to cause the bearing-sleeve carried thereby to extend laterally from either side thereof, a clutch-type power-transmitter carried by each of said bearing-sleeves, a clutch-shifting lever for each power-transmitter, a guard embracing each power-transmitter, and bracket-members interchangeably carried by said hangers at opposite sides thereof in accordance with the direction of lateral extension of the bearing-sleeves, said bracket-members having supporting means for said guards and clutch-shifting levers disposed symmetrically with respect to opposite sides of the bearing-sleeves.

In testimony whereof, we have signed our names to this specification.

GEORGE M. EAMES.
IRVING F. WEBB.