No. 719,030.

PATENTED JAN. 27, 1903.

W. McHAFFIE.

POWER TRANSMITTER.

APPLICATION FILED MAY 14, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

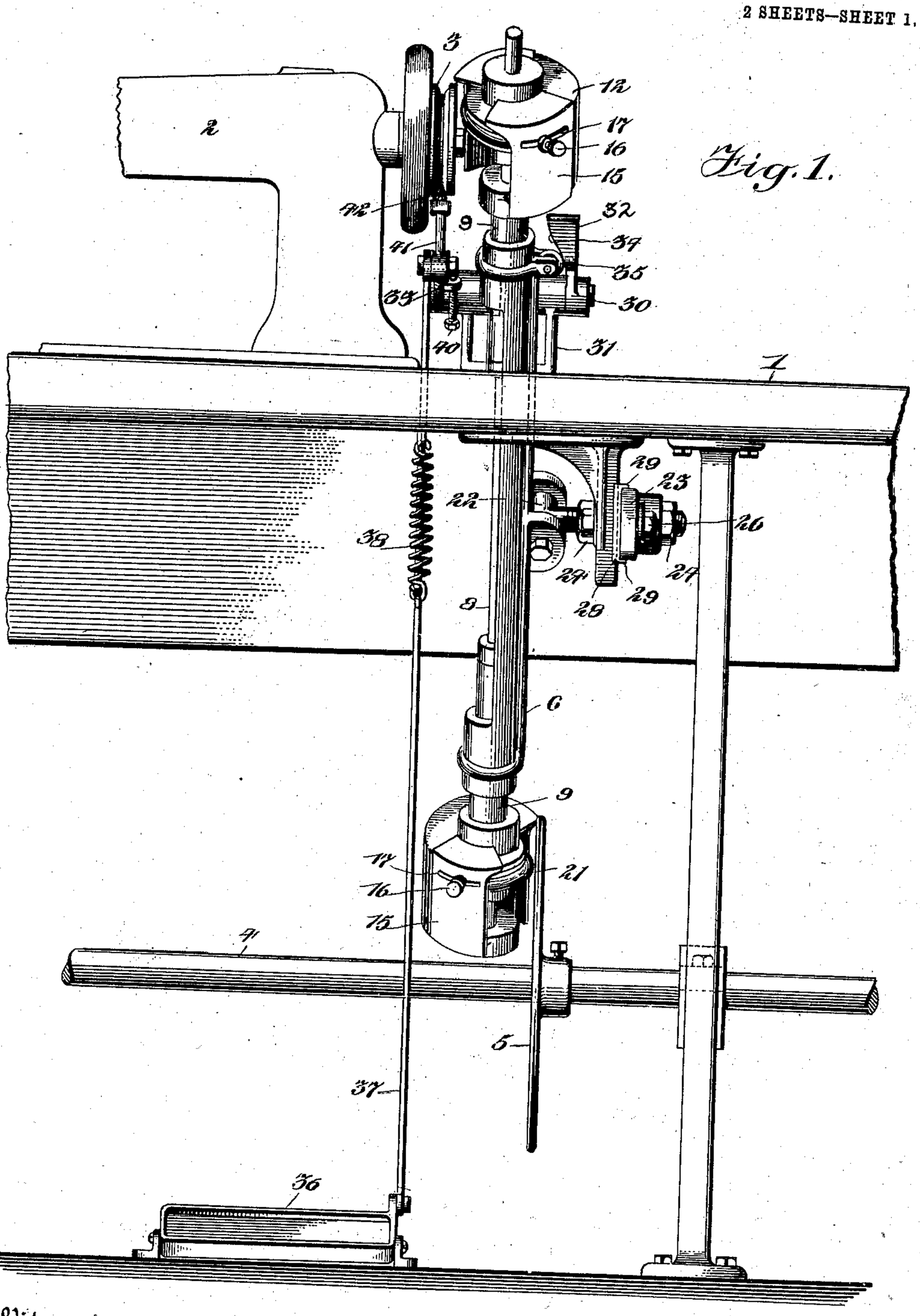

Fig. 1.

Witnesses
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M. L. Forrest

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2 SHEETS—SHEET 2.

Fig. 2.

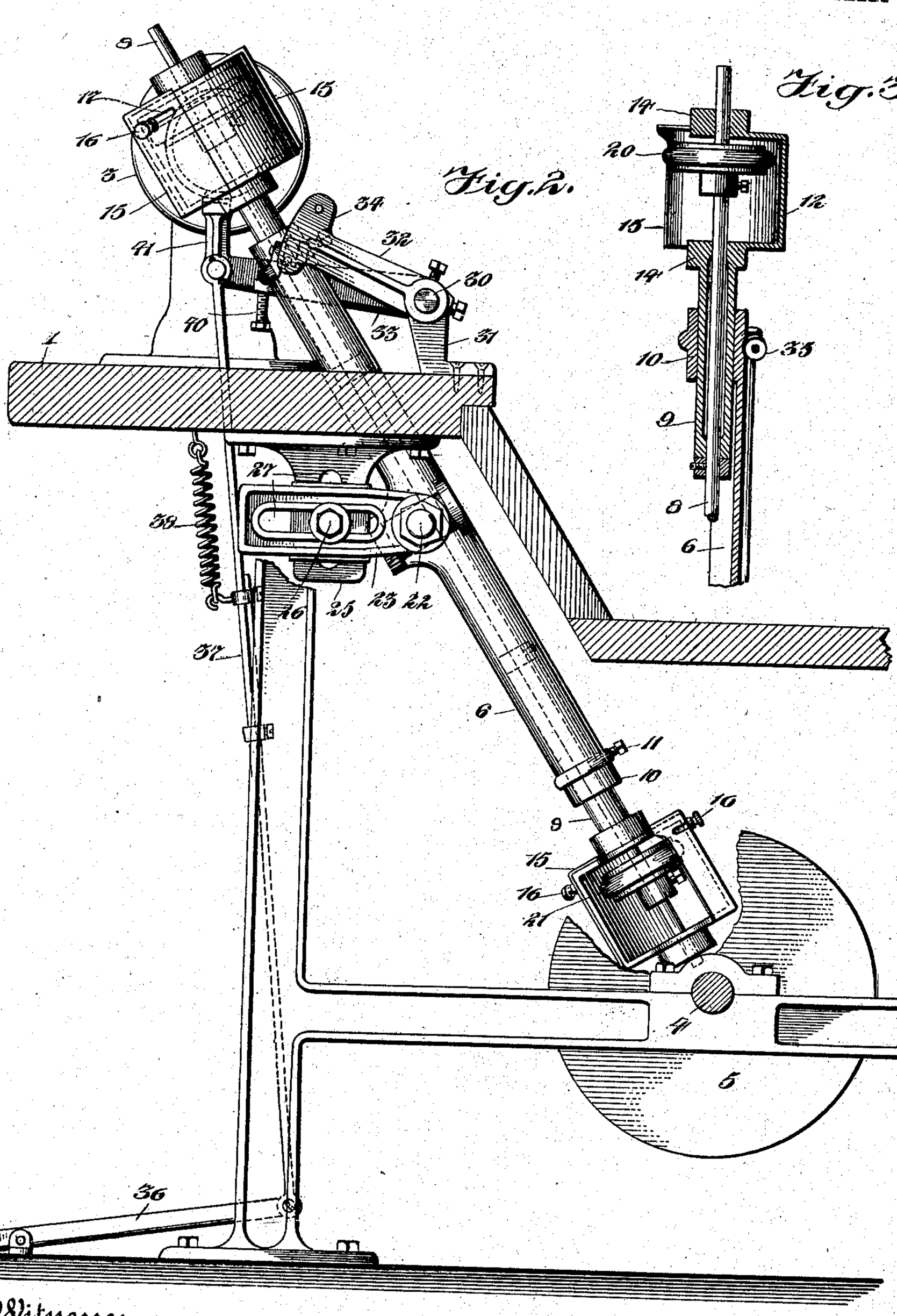

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM McHAFFIE, OF NEW YORK, N. Y.

POWER-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 719,030, dated January 27, 1903

Application filed May 14, 1902. Serial No. 107,262. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM McHAFFIE, a citizen of the United States, and a resident of the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Power-Transmitters, of which the following is a specification.

My invention relates to improvements in mechanism for transmitting power from a main driving-shaft, which is constantly in motion, to sewing or other similar machines, which are adapted to alternately run and stop; and it consists of certain additional improvements to the mechanism disclosed in my prior patent, No. 656.469, dated August 21, 1900. The transmitter mechanism of said patent includes a movable frame or bracket having a rotatable transmitter-shaft supported thereby in suitable bearings, the said shaft projecting at each end beyond the ends of the frame and having friction-disks thereon and the said frame being movable with the supported transmitter-shaft to move the friction-disks on the latter either into or away from engagement with the driving and driven disks or parts. In order that such transmitter may be readily adjusted to machines of different heights and sizes and also adjusted to vary the speed transmitted to the driven machine, the friction-disks are longitudinally adjustable on the transmitter-shaft. In making these desired adjustments to the disks it sometimes becomes necessary to locate the same a considerable distance from the ends of the transmitter-shaft-supporting frame, in which event the projecting disk-supporting ends of the shaft, by reason of having no direct bearing or support at their extreme outer end, are liable to spring under the pressure applied thereto when its disks are forced into contact with the driving and driven parts, and so cause the shaft to bind more or less in its bearings. To avoid possibility of such springing of the transmitter-shaft and without interfering with the necessary adjustments of the disks thereon has been one of the principal objects of my present invention, and I accomplish this by providing bearings for the shaft at opposite sides of each disk and located at sufficient distances apart to permit of a desired adjustment of the disk therebetween, the said bearings at the opposite sides of each disk being rigidly united by a suitable connection in the form of an offset.

In the operation of the transmitter the friction-disks are usually rotated at a very considerable speed and are liable to cause damage or injury to anything coming in contact therewith. In the transmitter disclosed in my prior patent these disks are exposed and unguarded, and it has therefore been another one of the objects of my present invention to provide a simple and effective means for guarding the said disks against undue contact therewith of any foreign object and without interfering in any way with their operation or adjustment. I accomplish this by providing a covering or hood for each disk, which is supported by the transmitter and is adjustable to either cover the disk or to expose the same for the purposes of adjustment or otherwise.

Other objects and advantages of the invention not hereinbefore referred to, but which will be hereinafter described, are illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a portion of a sewing-machine "power-table" with my improved transmitter in position thereon, showing the relative positions of the transmitter, the driving-disk, and the sewing-machine, the latter being broken away at its front end. Fig. 2 is an end elevation of the same looking toward the left, as viewed in Fig. 1, with certain of the parts partly broken away. Fig. 3 is a sectional detail showing the connection and adjustment between certain of the parts at one end of the transmitter.

In said drawings, 1 indicates a power-machine table of ordinary construction; 2, a sewing-machine head, partly broken away, supported upon said table; 3, the usual hand wheel or disk, which is made fast upon the end of the driving-shaft of said machine, and 4 the main power-shaft supported in suitable bearings beneath the table 1 and provided with a driving disk or wheel 5, made fast thereon. The transmitter in this case for communicating motion from the said driving disk or wheel 5 to the disk or wheel 3 of the

machine, like that of my prior patent in certain general features, comprises a pivoted frame or bracket 6, having a rotatable shaft 8, supported thereby, upon which are adjustably secured two friction-disks 20 and 21, the said parts being so arranged that by rocking the frame or bracket 6 in the proper direction the friction-disks on the shaft 8 may be caused to either engage with the disks 5 and 3, and so cause motion to be imparted to the machine, or be disengaged from said parts to permit the machine to be brought to a stop. In accordance with my present invention the frame 6 is provided, at each end thereof, with a bearing for the shaft 8, comprising a sleeve 9, which is longitudinally adjustable within a tubular portion 10 of the frame and is secured in a stationary adjusted position relative to the latter by a set-screw 11. This bearing-sleeve 9 projects at one end beyond the adjacent end of the frame 6 and is provided with an offset portion or wall 12, so as to provide bearings 14 14 for the shaft 8 at a considerable distance apart to permit of the location and adjustment of the friction-disk on the shaft therebetween. The said bearings 14 14, although supported at some distance apart, as described, are so rigidly united by the connecting offset wall 12 that the outer bearing serves to firmly support the shaft 8 at its outer end and prevent springing of the same.

The hood for covering and protecting the friction-disk at each end of the transmitter is formed, in the present instance shown, by the said offset wall 12 of the sleeve 9, which is made of sufficient width to inclose the disk at one side, and two movable wall sections or slides 15 15, which are slidingly supported upon the said fixed wall-section 12, to be movable to and from a position to further inclose the disk, it being of course understood that a sufficient opening or space must remain unclosed to permit of the engagement of the friction-disk with the adjacent driving or driven disk, which it is adapted to engage. The movable wall-sections 15 15 may be each removably and slidingly retained in connection with the fixed wall-section 12 by any suitable means, a set-screw 16, connected with the fixed wall-section and engaging with each of the movable wall-sections through an elongated slot 17 therein, being employed for such purpose in the present case. When the transmitter is in operation, the movable sections of the hood will of course be moved to a position to inclose the friction-disks; but at any time it may be desired to reach the said disks for the purposes of adjustment or otherwise this may be done by loosening one or both of the set-screws 16 and then sliding the movable wall-section backward or in a direction to expose the disk. When the movable wall-sections are thus moved backward, however, the desired access to the exposed side of the hood may be interfered with somewhat by the adjacent driving or driven disk, in which event the bearing-sleeve 9 may be turned in its bearing after loosening the set-screw 11 so as to turn the said exposed side of the hood outward, when free access to the same may be had. In adjusting the friction-disk on the shaft 8 for the purpose of varying the speed to be transmitted to the driven part or for the purpose of adapting the transmitter to machines of different heights or sizes if the space in the hood between the bearings 14 14 is not sufficient to permit of the desired adjustment the said hood may be adjusted longitudinally on the shaft to permit of such additional adjustment by moving the sleeve 9 in the proper direction relative to the frame 6.

The transmitter may be supported in any suitable manner to permit of its being moved to and from a position for effecting operative engagement with the driving and driven parts, such support of the transmitter being effected in the present case by pivoting the frame 6 at a point between its ends upon a suitable support, such as the pin or bolt 22, whereby the transmitter may be rocked to and from its said operative position, this rocking action being permitted in effecting the change in position of the transmitter by reason of the latter being arranged to engage with opposite sides of the respective driving and driven disks or parts, as shown. In order to provide for the necessary adjustments to enable the transmitter to be readily and accurately positioned on the table relative to the driving and driven parts, the said transmitter-supporting pin or bolt 22 has a longitudinally and horizontally adjustable connection with a bracket-plate 23, to which it is secured in adjusted position by suitable clamping-nuts 24 24, and the said plate 23 has a horizontally and vertically adjustable connection with a stationary bracket-plate 25, depending from the under side of the table 1, to which it is secured by a clamping-bolt 26, each of said plates being provided with an elongated slot 27, arranged at right angles to each other, through which the said clamping-bolt 26 extends to permit of the horizontal and vertical adjustments of the plate 23 referred to. A plate 28, located between the bracket-plates 23 and 25 and having a pair of lips or flanges 28 28 at one side thereof embracing the edges of the bracket-plate 25 and having a second pair of lips or flanges 29 29 on its opposite side arranged at right angles to the former and embracing the edges of the adjustable bracket-plate 23, serves to movably hold the latter from turning and in its normal horizontal position relative to the stationary bracket-plate 25.

The transmitter may be moved or rocked to and from its operative position of engagement with the driving and driven disks or parts by any suitable means, the means employed in the present case being as follows: A short rock-shaft 30 is journaled in a sup-

porting-bracket 31 on the upper side of the table 1 and is provided with two arms 32 and 33, the arm 32 having a cam 34, adjacent to its outer end, arranged to engage with an antifriction-roll 35, secured to the transmitter-frame 6 near its upper end, and the second arm 33 having connection with a foot-treadle 36 through the medium of a rod 37. By pressing downward upon the treadle 36 the operator may cause the cam 34 to engage with the roll 35, and so rock the transmitter into operative engagement with the driving and driven parts, whereby motion will be transmitted to the latter, a spring 38, connected at one end with the rod 37 and at its opposite end with the table, serving to automatically raise the cam-arm and release the transmitter from its operative engagement with the driving and driven parts when the operator relieves the pressure on the treadle. An adjustable stop 40, carried by the rock-arm 33, is adapted to engage with the table or other suitable stop-surface when the cam 34 is lowered into operative engagement with the transmitter, so as to prevent undue pressure of the transmitter friction-disks against the engaging driving and driven parts.

In order that the machine may be brought to a quick stop after the transmitter has been released from operative engagement therewith, I have provided the rock-arm 33 with an extension 41, having a piece of leather or similar material 42 thereon, which is adapted to be forced into engagement with the disk 3 of the machine upon the upward movement of the arm 33 when pressure is removed from the treadle and serve as a friction-brake to stop the machine.

As an important feature of my present invention I support the transmitter in such position relative to the driving and driven parts or disks that when it is in its inoperative position, as shown in Fig. 1, the friction-disk at the lower end of the transmitter will be closer to the driving-disk than the other friction-disk to the driven disk, as shown. This arrangement causes the said lower friction-disk upon the rocking of the transmitter to first engage with the driving-disk and cause a considerable speed to be imparted to the transmitter-shaft before the other friction-disk has engaged with the disk of the machine, so that when the latter engagement takes place the machine will be caused to quickly operate at a high speed.

Having thus set forth my invention, what I claim, and desire to secure by Letters Patent, is—

1. A power-transmitter, comprising a rotatable shaft, disks longitudinally adjustable thereon, and a supporting frame or bracket provided with bearings for said shaft at each side of the disks thereon, for the purpose set forth.

2. A power-transmitter, comprising a rotatable shaft, a disk longitudinally adjustable thereon, and a supporting frame or bracket provided with bearings for said shaft at each side of the disk thereon, for the purpose set forth.

3. A power-transmitter, comprising a rotatable shaft, a disk longitudinally adjustable thereon, and a supporting frame or bracket provided with bearings for said shaft at each side of the disk thereon, the said bearings being connected by an offset wall.

4. A power-transmitter, comprising a rotatable shaft, a disk longitudinally adjustable thereon, and a supporting frame or bracket provided with bearings for said shaft at each side of the disk thereon, the said bearings being connected by an offset wall and being adjustable relative to the frame or bracket.

5. A power-transmitter, comprising a rotatable shaft, a disk longitudinally adjustable thereon, and a supporting frame or bracket provided with bearings for said shaft at each side of the disk thereon and with a hood for partially inclosing said disk.

6. A power-transmitter, comprising a rotatable shaft, a disk longitudinally adjustable thereon, and a supporting frame or bracket provided with bearings for said shaft at each side of the disk thereon and with a hood for said disk, the said hood being adjustable relative to the frame or bracket, for the purpose set forth.

7. A power-transmitter, comprising a rotatable shaft, a disk longitudinally adjustable thereon, and a frame or bracket supporting said shaft and provided with a hood for the disk thereon, the said hood being adjustable relative to the frame or bracket.

8. A power-transmitter, comprising a rotatable shaft, a disk longitudinally adjustable thereon, and a frame or bracket supporting said shaft and provided with a hood for the disk thereon, the said hood comprising a fixed wall and a movable wall or slide.

9. A power-transmitter, comprising a rotatable shaft, a disk adjustable thereon, and a frame or bracket supporting said shaft and provided with a hood for the disk thereon, the said hood comprising a fixed wall and two movable walls or slides.

10. A power-transmitter, comprising a rotatable shaft, a disk longitudinally adjustable thereon, a supporting frame or bracket provided with bearings for said shaft at each side of the disk thereon, the said bearings being connected by an offset wall, and a hood for the disk comprising the said offset wall and two movable walls or slides.

11. A power-transmitter, comprising a rotatable shaft, a disk longitudinaliy adjustable thereon, and a frame or bracket provided with a bearing-sleeve for said shaft adjustably supported thereby, the said adjustable bearing-sleeve being provided with a hood for the disk supported and carried thereby.

12. The combination, with driving and driven parts, of a power-transmitter arranged

intermediate of said parts, comprising a rotatable shaft, friction-disks thereon, and a movable frame or bracket provided with bearings for said shaft at each side of the disks thereon.

13. The combination, with driving and driven parts, of a power-transmitter arranged intermediate of said parts, comprising a rotatable shaft, friction-disks longitudinally adjustable thereon, a movable frame or bracket provided with adjustable bearings extending beyond each end thereof for supporting said shaft, and means for moving the transmitter into position to effect operative engagement with the driving and driven parts.

14. The combination, with driving and driven parts, of a power-transmitter arranged intermediate of said parts, comprising a rotatable shaft, friction-disks thereon, and a movable frame or bracket supporting said shaft and provided with hoods carried thereby for guarding said disks.

15. The combination, with driving and driven parts, of a power-transmitter arranged intermediate of said parts, comprising a rotatable shaft, friction-disks longitudinally adjustable thereon, a movable frame or bracket provided with bearing-sleeves for said shaft adjustably supported thereby, the said adjustable bearing-sleeves being each provided with a hood for the adjacent disk supported and carried thereby, and means for moving the transmitter into position to effect operative engagement with the driving and driven parts.

16. The combination, with driving and driven parts, of a power-transmitter arranged intermediate of said parts, and means for supporting the transmitter, comprising a pin or bolt having the transmitter pivotally connected thereto, a stationary bracket-plate, an adjustable bracket-plate carrying said pin or bolt and having a vertically and horizontally adjustable connection with said stationary bracket-plate, and a plate between said bracket-plates having means for loosely engaging with each of the same and holding the adjustable one in its proper normal position relative to the stationary one, for the purpose set forth.

17. The combination, with driving and driven parts, of a power-transmitter pivotally supported intermediate of said parts, and means for moving the transmitter into position to effect operative engagement with said driving and driven parts, comprising a rock-arm having a cam-surface for engaging with the transmitter, and an actuating part operatively connected with said rock-arm.

18. The combination, with driving and driven parts, of a power-transmitter pivotally supported intermediate of said parts, and means for moving the transmitter into position to effect operative engagement with said driving and driven parts, comprising a rock-arm having a cam-surface for engaging with the transmitter, a stop for limiting the movement of said rock-arm, and an actuating part operatively connected with the rock-arm.

19. The combination, with driving and driven parts, of a power-transmitter pivotally supported intermediate of said parts, means for moving the transmitter into position to effect operative engagement with said driving and driven parts, comprising a rock-shaft having a cam-arm for engaging with the transmitter, the said rock-shaft also being provided with a second arm which is arranged to engage with the driven part or disk and operate as a brake when the cam-arm is moved by the rock-shaft to release the transmitter, substantially as and for the purpose set forth.

20. The combination, with driving and driven parts, of a power-transmitter arranged intermediate of said parts, comprising a rotatable shaft, friction-disks thereon, and a movable supporting frame or bracket provided with bearings for said shaft, the transmitter being supported, when in inoperative position, with one of its disks in nearer relation to the driving part than the other is to the driven part, for the purpose set forth.

21. The combination, with driving and driven parts, of a power-transmitter pivotally supported intermediate of said parts, comprising a rotatable shaft, friction-disks thereon, and a movable supporting frame or bracket provided with bearings for said shaft, the transmitter being supported, when in inoperative position, with one of its disks in nearer relation to the driving part than the other is to the driven part, for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 10th day of May, 1902.

WILLIAM McHAFFIE.

Witnesses:
CHAS. F. DANE,
M. L. FORREST.