M. TAIGMAN.

ELECTRICALLY CONTROLLED TRANSMISSION.

APPLICATION FILED MAY 17, 1918.

1,378,146.

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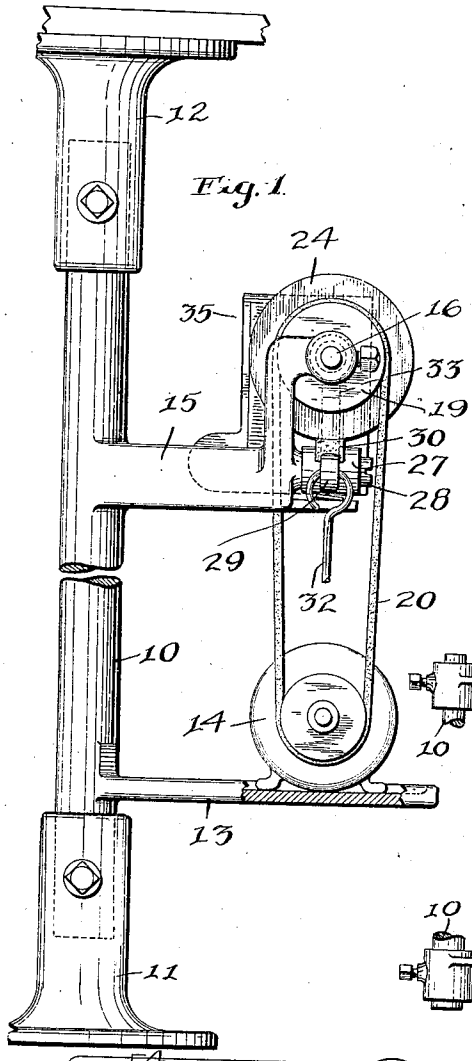


Fig. 1.

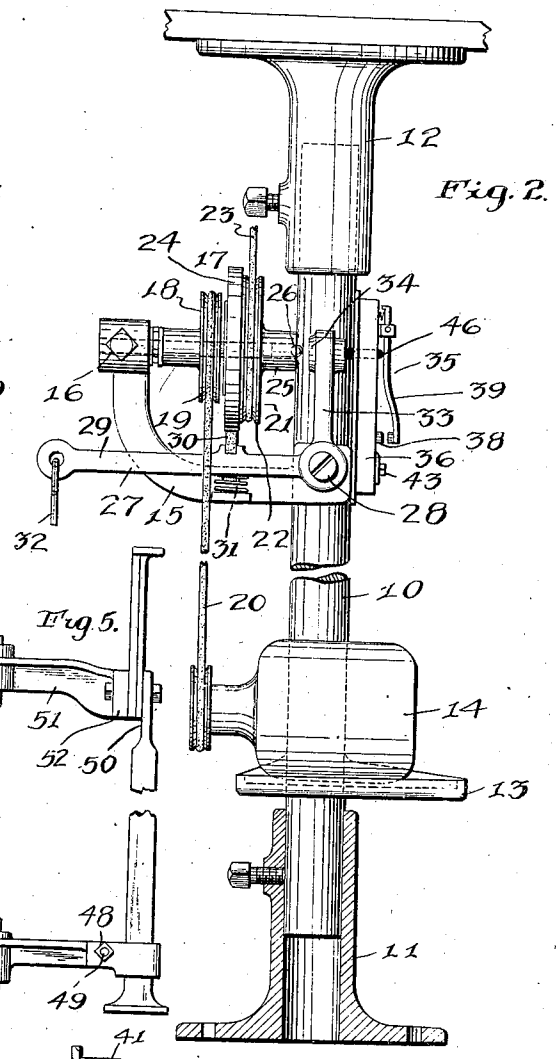


Fig. 2.

Fig. 5.

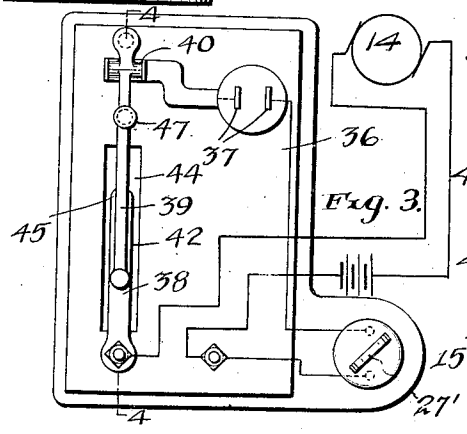


Fig. 3.

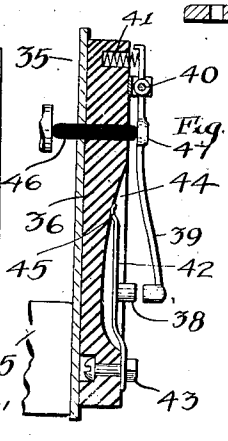


Fig. 4.



Fig. 6.

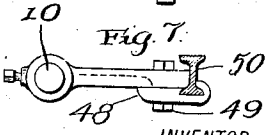


Fig. 7.

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ELECTRICALLY-CONTROLLED TRANSMISSION.

1,378,146. Specification of Letters Patent. Patented May 17, 1921.

Application filed May 17, 1918. Serial No. 235,221.

To all whom it may concern:

Be it known that I, MAX TAIGMAN, a citizen of the United States, and resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Electrically-Controlled Transmission, of which the following is a specification.

The invention relates to an attachment which can be arranged selectively to constitute an electrically actuated power plant for driving a single machine, or to constitute a control for any one of a series of machines driven from a common power source, and this application constitutes another embodiment of the invention disclosed in my co-pending application, entitled Electrically controlled transmission, Serial No. 235,220, filed under even date.

In factories where a large number of sewing machines and the like are used, it is economical to drive a large number of machines from a single line shaft during the busy season, but during the slack season it is desirable to run the few necessary machines separately by individual motors.

Accordingly, the invention has for an object the provision of a simple attachment which can be added to the usual power table of a sewing machine to supply power to a control for a single machine, or which with the individual motor disconnected from the sewing machine can be used as a control for coupling any one of the machines in the plant with the general line shaft.

The invention contemplates in its details an arrangement including a driving connection with the motor, which connection includes a friction driving clutch, a control for the motor and a single foot-actuated control for simultaneously moving the clutch into operative position and completing the circuit through the motor.

Another object of the invention is to provide an organization of parts such as described, which can be mounted in any position adjacent the machine to be driven and which can be operatively connected thereto by a belting connected either to a motor or to the line shafting.

Another object of the invention is to provide a simple form of circuit controlling switch which will withstand the wear and tear and the jars thereon incidental to the rapid actuation of the same when used in connection with the driving of sewing machines or similar devices in which the periods of interruptions rapidly succeed each other and are of short time duration.

A further object of the invention is to provide in the organization above outlined, a simple form of brake which will promptly and quickly stop the actuation of the driven parts when disconnected from the freely revolving motor element.

Various other objects and advantages of the invention will be in part obvious from an inspection of the accompanying drawings and in part will be more fully set forth in the following particular description of one form of mechanism embodying my invention, and the invention also consists in certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

Referring to the accompanying drawings:—

Figure 1 is a view in side elevation of a device showing a preferred embodiment of my invention mounted on its own supporting stand;

Fig. 2 is a view in front elevation of the device shown in Fig. 1;

Fig. 3 is an enlarged view of the switch element looking at the same from the right hand side of Fig. 2;

Fig. 4 is a vertical, sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a detail view in side elevation showing another method of affixing the attachment to a conventional form of sewing machine power table; and

Figs. 6 and 7 are details in plan respectively of the upper and lower brackets shown in Fig. 5.

In the following description and in the claims, parts will be identified by specific names for convenience of expression, but they are intended to be as generic in their application to similar parts as the art will permit.

In the accompanying drawings, and referring particularly to Figs. 1 and 2, there is shown a support 10 in the form of a solid rod, designed to be mounted for vertical adjustment in a base member 11 and a top member 12 which may be fixed respectively to the floor and to some suitable head piece, such as a part of the frame of the machine driven by the device, or may be positioned adjacent such frame. The rod 10 is provided adjacent its lower portion with a

bracket 13 upon which is mounted a motor 14. The support 10 is also provided with a laterally extending bracket 15 in the form of an upwardly curved arm in which is supported one end of a dead shaft 16. A clutch 17 is loosely mounted upon the shaft 16 and includes a driving member 18 which is provided with a pulley 19 connected to be driven from the motor by means of belting 20. The coacting driven member 21 of the clutch is provided with a pulley 22 designed to be connected by belting 23, with the machine designed to be driven by the motor. The driven member 22 is also provided with a hollow brake disk 24, which has a relatively large external diameter so as to position a broad bearing surface to the outside of the clutch elements.

The hub of the member 22 is provided with an extension 25 projecting beyond the free end of the shaft 16 and is provided at its outer end with a freely rotatable ball-bearing 26. A bell-crank lever 27 is fulcrumed to the bracket 15 by means of a set screw 28. The lever includes a horizontally extending arm 29 underlapping the brake disk 24 and projecting over the controlling foot pedal (not shown) usual with such machines. The arm 29 is provided with a brake member 30 designed to be forced by a compression spring 31 into firm clutching engagement with the brake band to hold the same normally against rotation. The free end of the arm 29 is provided with a reach rod 32 designed to extend to the foot pedal where the device is designed to be controlled by a foot movement of the operator, or to any suitable actuating handle.

The lever also includes an upstanding arm 33 having an enlarged bearing head 34 designed to be forced against the roller bearing 26 to move the driven clutch element 22 into frictional clutching engagement with the driving clutch element 18.

The motor 14 is controlled by a switch 35 demountably positioned on the bracket 15. The switch includes a supporting plate 36 provided on its rear face with terminal sockets 37 designed to receive a plug connection with a source of electric energy and provided with a snap switch 27′ for manually controlling the circuit through the control switch. The control switch includes a relatively stationary contact member 38 and a relatively movable contact member 39. The member 39 is in the form of a lever fulcrumed intermediate its end on a pivot pin 40 and provided at one end with a housed spring 41 mounted in a recess in the plate 36 and bearing upon the opposite end of the lever 39 so as to maintain the contacts normally in circuit closing position.

For the purpose of resiliently mounting the relatively fixed contact 38, this contact is mounted upon a strip 42 of resilient metal, one end of which is fastened to the binding post 43 and the other end of which is disposed in a hollowed recess 44 in the support 36. The free end 45 of the strip 42 bears against the side of this recess, and this causes the strip to act as a spring bridge. The support 36 is provided with a plunger 46, one end of which is designed to bear on the enlarged head 47 of the lever 39, and the other end of which is adapted to be engaged by the head 34 of the lever arm 33, so as to maintain the movable contact in open position as shown in Fig. 4 when the control lever 37 is in its breaking position as shown in Fig. 2.

In the device as thus described the attachment has been considered as providing its own support, but it is to be understood that the bracket 13 may be in the form of a two-part arm 48, as shown in Figs. 5 and 7, the parts of which can be attached by means of a bolt 49 to the upright 50 of a conventional form of power table. Also the bracket 15 may be separate from the rod 10, and may be in the form of an arm 51 provided with an apertured flange 52 for attaching the same to the upright 50. This construction is particularly desirable where it is desired to omit the separate motor and drive the pulley 19 from a line shaft.

In operation and assuming that the parts are in position as shown in Fig. 2 and with the motor 14 in position to supply the power, rod 32 is lowered in order to start the machine. This movement will act through the control lever to lower the brake member 30 from its engagement with the brake band and at the same time to move the head 34 to the left of the position shown in Fig. 2 and into engagement with the bearing 26. The shiftable element of the friction clutch element 25 will thus be moved into binding engagement with the driven member 18. At the same time the pressure on the plunger 46 will be released, thus permitting the spring 41 to act on the control lever 39 and complete the electric circuit through the switch to actuate the motor. Power will thus be conveyed from the motor through the clutch to the machine. Releasing pressure on the rod 32 will permit the parts of the clutch to kick themselves apart and the spring 31 will reset the brake, and thus stop the machine.

An attachment of this character is particularly applicable to a factory in which a battery of machines are actuated from a single line shaft. In this case the belt 20 is connected to the shaft rather than to the motor and the part of this device which includes the clutch control, together with its coacting brake, is utilized without making use of the illustrated motor or its circuit closing switch. In the slack season when but a few machines are in operation the belt

20 of each machine is coupled up to its individual motor 14 and the individual machines thus organized are actuated as previously described.

Where it is desired to use the stand of the power table, the attachment shown in Fig. 5, omitting the base member 11 and top member 12, may be used simply by bolting the bracket arms 48 and 51 to the upright 50 now found on these stands.

Having described my invention, what I claim is:

1. In a device of the class described, the combination of a support including a motor supporting bracket, a motor carried thereby, a second bracket positioned above the motor, a dead shaft fixed in said second bracket against rotation, a clutch loosely mounted on said dead shaft and including a driving member operatively connected to the motor to be driven thereby and a coacting driven member provided with means for connecting the same to drive a machine, said driven member provided with a brake disk, a single manually actuated lever provided with a brake member adapted to engage the brake disk to force the driven member in a direction transversely of its axis of rotation and into bearing engagement with the dead shaft, a normally closed switch for controlling the motor oppositely disposed to the clutch, said lever provided with an arm disposed between the clutch and switch acting in one direction for engaging the driven clutch member to move the same longitudinally along the dead shaft and into clutching engagement with the driving member and acting in the opposite direction on said switch to move the same into an open position and thus intercept the current supply to the motor simultaneously with the braking of the driven clutch member.

2. An attachment for a motor driven clutch comprising a bell crank lever pivoted at its angle with one arm extending horizontally and constituting an actuating arm and the other arm extending vertically and constituting a clutch controlling member, a clutch on one side of said member, a switch on the other side, a spring for moving the switch into circuit closing position, and a plunger controlled by the clutch controlling member for holding said switch in circuit breaking position and against the action of said spring.

3. An article of manufacture constituting an attachment for a motor driven clutch mechanism comprising a support, a clutch carried by the support and including a movable element, a switch comprising a relatively fixed contact member carried by said support and a movable contact member coacting with the fixed contact member, a resilient mounting for the fixed contact member, means acting on the movable contact member for moving the same into circuit closing engagement with the resiliently mounted fixed contact member, a plunger carried by the support in axial alinement with said movable element, and a clutch controlling member acting in one direction through said plunger to hold the movable member in spaced relation to the resiliently mounted fixed member and in the other direction to shift said movable element.

Signed at New York in the county of New York and State of New York this 4th day of May, A. D. 1918.

MAX TAIGMAN.