Aug. 2, 1932. R. HARGREAVES 1,869,686

MOTOR DRIVE FOR SPINNING OR TWISTING MACHINES

Filed July 27, 1931 2 Sheets-Sheet 1

Fig. 1

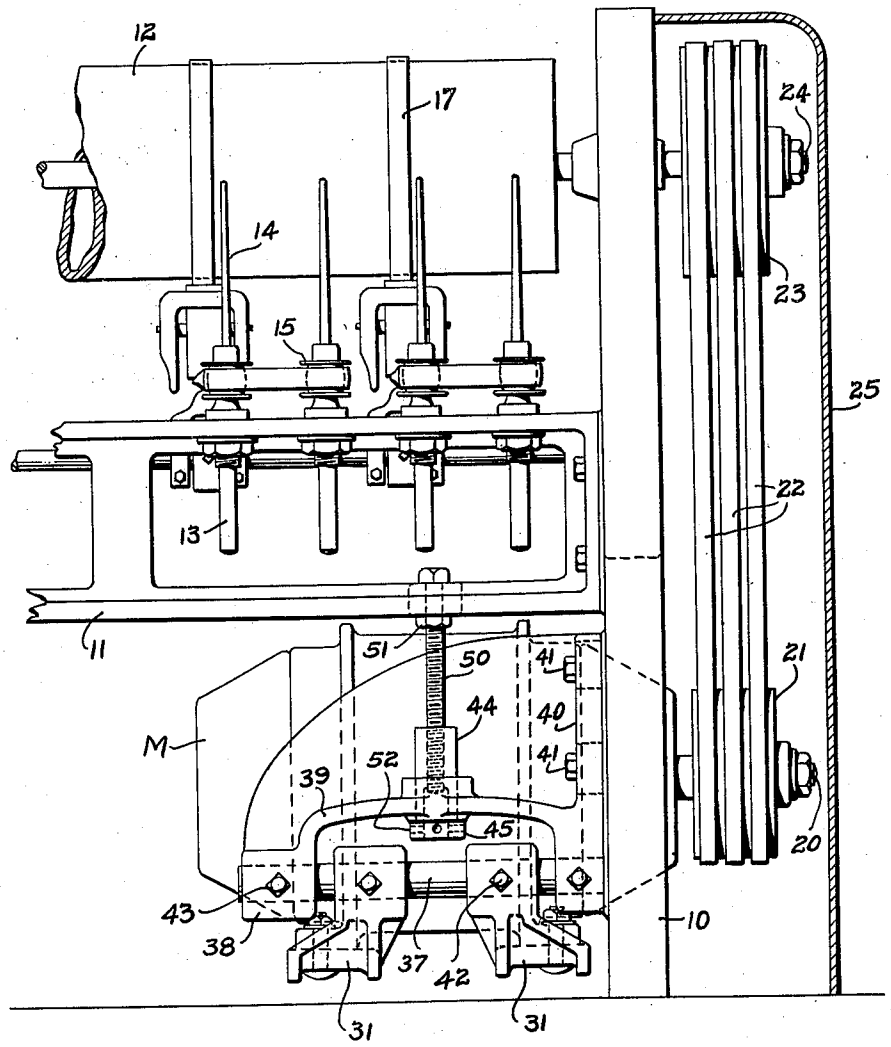

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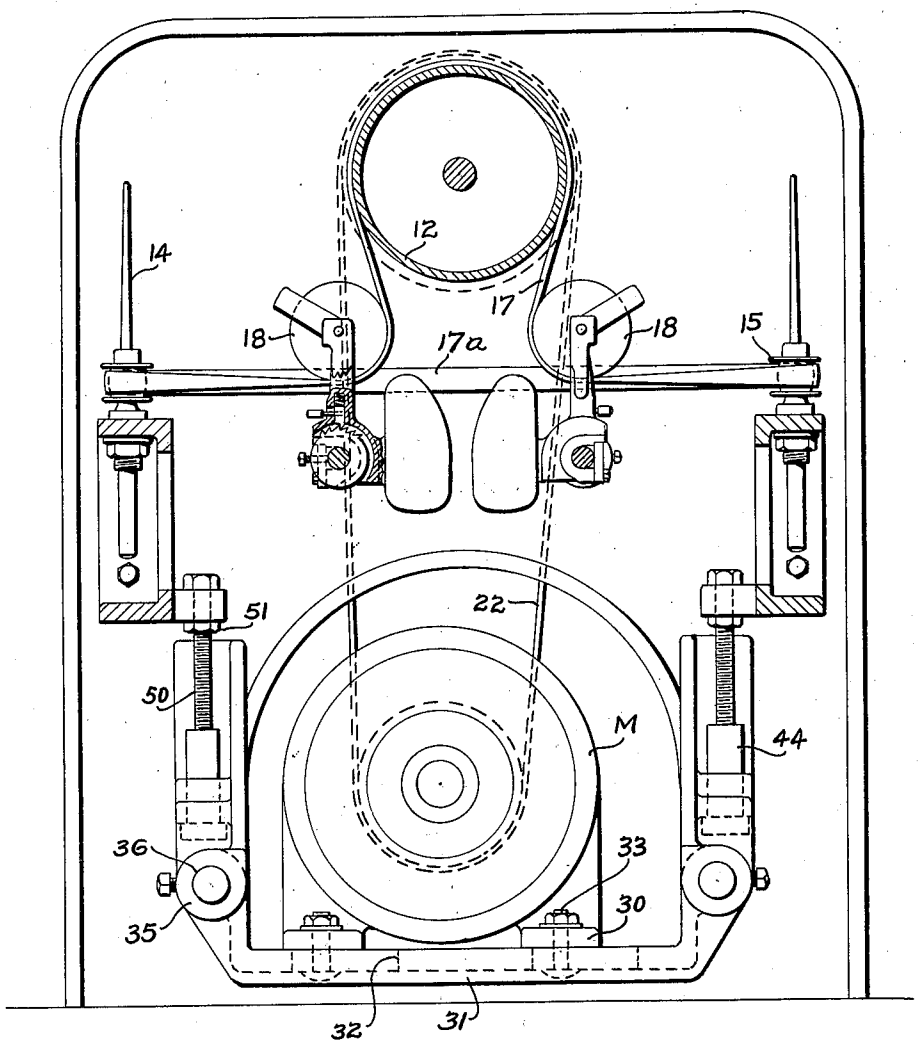
Fig. 2.



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UNITED STATES PATENT OFFICE

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MOTOR DRIVE FOR SPINNING OR TWISTING MACHINES

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This invention relates to machines for spinning or twisting textile fibres and particularly to the driving mechanism therefor.

It is the general object of my invention to provide an improved motor drive for such machines by the use of which floor space is economized and safety in operation is increased.

A particular feature of the invention relates to the provision of improved means by which a motor may be suspended in operative position in a spinning or twisting machine and by which the belt tension may be conveniently adjusted.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a partial side elevation of a spinning frame, with a cover plate shown in section, and

Fig. 2 is an end elevation of the spinning frame, with certain parts shown in section.

Referring to the drawings, I have shown parts of a spinning or twisting machine comprising an end frame member 10, spindle rails 11, a driving cylinder 12, and a plurality of spindles 13 having spindle blades 14 provided with whirls 15.

The cylinder 12 is mounted in the upper part of the frame, substantially above the plane of the whirls 15, and the cylinder 12 is connected to the spindles by a plurality of bands 17, each driving two spindles at each side of the machine. Each band 17 has a straight run 17ª across the frame, connecting similarly located spindles at opposite sides thereof, while the other run of the band is led around guide pulleys 18 (Fig. 2) and is then looped upward over the driving cylinder 12.

Suitable provision is made for taking up the slack of the bands 17 but such provision constitutes no part of my present invention.

A motor M is positioned in the lower part of the spinning or twisting frame and within the lateral and longitudinal limits thereof. An armature shaft 20 projects from one end of the motor M beyond the end frame 10 and is provided with a pulley or sprocket 21, connected by belts or chains 22 to a pulley or sprocket 23 on the cylinder shaft 24. A suitable casing 25 may be provided to enclose the belt or chain drive.

The motor M may be of a usual commercial construction and is preferably provided with base plates or feet 30 adapted to be bolted to cross frame members 31 having slots 32 to receive clamping bolts 33. The cross frame members 31 are provided with up-turned end portions 35 having openings 36 therethrough, adapted to receive cylindrical bars 37 which are preferably secured in depending portions 38 of supporting brackets 39.

The upright end portion 40 of each bracket 39 is slidable vertically in guideways in the end frame 10 and may be secured in vertically adjusted position thereon by clamping screws or bolts 41. The cross bars 31 may be adjusted toward or away from each other on the cylindrical bars 37 and may be secured in adjusted position by set screws 42. The bars 37 are held from displacement by set screws 43.

A nut 44 is rotatably mounted in each bracket 39 and is provided with an enlarged end portion 45, preventing upward movement of the nut relative to the bracket. Each nut 44 is threaded to receive a supporting screw 50, extending downward from a spindle rail 11 and held from rotation therein by a lock nut 51.

The head 45 of the nut 44 is provided with openings 52 to receive the end of a suitable tool for turning the nut relative to the screw 50.

With this construction, I am able to very conveniently mount any usual commercial type of motor M within the limits of floor space occupied by a commercial spinning or twisting machine, and I am able to conveniently adjust the motor to secure the desired tension on the driving belts 22.

The slots 32 in the cross bars 31 provide for different transverse spacing of the motor feet 30, and adjustment of the cross bars 31 on the cylindrical bars 37 provides for varying longitudinal spacing of the motor feet.

The weight of the motor is largely carried

by the supporting screws 50 and the motor can be adjusted vertically by turning the nuts 45 relative to the adjusting screws 50. After being brought to the desired vertical position, the motor may be firmly secured against vibration by tightening the clamping nuts 41, thus binding the upright portion 40 of each bracket 39 in the guideways provided therefor.

I have thus provided a motor drive for a spinning or twisting machine in which the motor is positioned within the floor-space limits of the machine, thus economizing room in the factory or mill, and in which convenient and effective provision is made for vertically adjusting the motor to obtain the desired belt tension or for any other purpose.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:—

1. In a spinning or twisting machine, a frame having a plurality of spindles mounted along each side thereof, a driving cylinder for said spindles mounted in said frame and positioned substantially above the level of the driving portions of said spindles, a motor suspended from side portions of said frame and within the floor space thereof, a relatively long direct vertical belt drive from said motor to said cylinder, and means to raise and lower said motor relatively to said frame to adjust the belt tension.

2. In a spinning or twisting machine, a frame having a plurality of spindles mounted along each side thereof, a driving cylinder for said spindles mounted in said frame and positioned substantially above the level of the driving portions of said spindles, a plurality of bands, each driving a plurality of said spindles and each having a straight run directly across said frame below said cylinder and having a guided portion looped upward over and around said cylinder, a motor suspended from a side portion of said frame and within the floor space thereof, a relatively long direct vertical belt drive from said motor to said cylinder, and means to raise and lower said motor relatively to said frame to adjust the belt tension.

3. In a spinning or twisting machine, a frame having a plurality of spindles mounted along each side thereof, a driving cylinder for said spindles mounted in said frame, a motor positioned within the base portion of said frame and belt connected to said cylinder, and means to support said motor from side portions of said frame and to raise and lower said motor relatively to said frame.

4. In a spinning or twisting machine, a frame having a plurality of spindles mounted along each side thereof, a driving cylinder for said spindles mounted in said frame, a motor positioned within the base portion of said frame and belt connected to said cylinder, and means to support said motor in said frame, said supporting means for said motor comprising end brackets each having an upright end portion adapted to be guided on said frame and secured thereto and each having a horizontally extending cross bar and a plurality of motor supporting members mounted on and slidable axially of said cross bars.

5. In a spinning or twisting machine, a frame having a plurality of spindles mounted along each side thereof, a driving cylinder for said spindles mounted in said frame, a motor positioned within the base portion of said frame and belt connected to said cylinder, means to support said motor from side portions of said frame and to raise and lower said motor relatively to said frame, and means to secure said motor to an end portion of said frame in vertically adjusted position.

In testimony whereof I have hereunto affixed my signature.

ROBERT HARGREAVES.