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SPINNING AND TWISTING MACHINE

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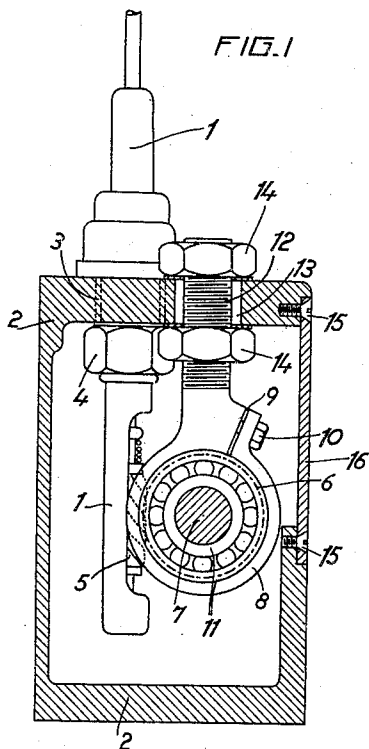


FIG. 3

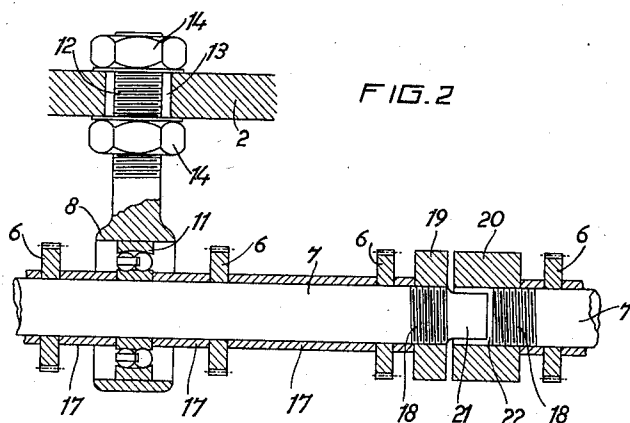
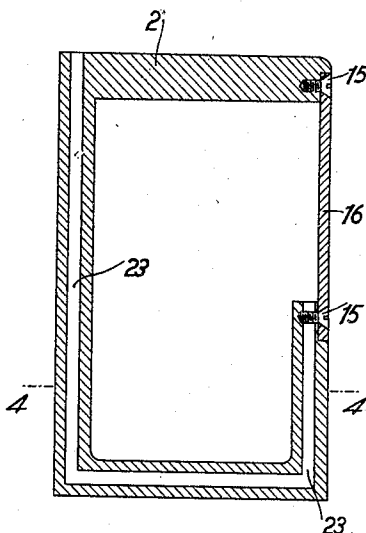


FIG. 2

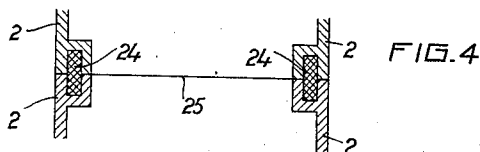


FIG. 4

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SPINNING AND TWISTING MACHINE

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In machines for continuous spinning and twisting two different methods of causing the rotation of the spindles are employed. In the one this movement is transmitted from a common drum to each of the pulleys mounted upon the spindles, by means of cords or bands. In the second the spindle receives its movement through an endless worm or wheel mounted at the lower extremity of the spindle which gears with a driving wheel mounted upon a shaft common to all the spindles of the machine. In the first case the characteristic of the support or frame serving to carry the spindles is substantially U-shape in which the intermediate part of the section is disposed vertically whereby one of the parallel walls of the section is disposed vertically one above the other. The upper part of the section of the support serves for the reception of a series of equidistant holes one for each spindle, the mounting of the spindle being effected by means of a nut which carries the spindle and which presses on the under face of the upper wall of the support or frame. Upon the lower part of the support or frame are mounted the parts which serve to transmit the reciprocating movement to the balance or rings support.

In the second case the support or frame may take a variety of forms, but they offer various disadvantages in the mounting of the driving wheels which gear with the wheels mounted at the lower extremity of each spindle. To avoid these disadvantages in the simplification of the mounting and adjustment, means are provided according to the invention for suspending from the upper part of the support a common spindle upon which are mounted the driving wheels and their supports. For this purpose a series of holes are provided of greater diameter than the extremities of the said supports which are provided with bolts having two nuts between which is engaged the upper part of the frame or support carrying the spindles. In this manner there is obtained the necessary vertical and horizontal adjustments of the spindle which facilitates the mounting and adjustment of the respective parts. At

the same time for transmitting the movement from a series of spindles to those that are adjacent means are provided according to the invention which serve two distinct purposes, the first is to render integral with the main spindle all the driving wheels and the tubes or sleeves which separate the one from the other, and the second is to provide a system of assembly of one section of spindle with another adjacent section.

With these modifications and for the adaptation of a new system of spindles the frame or support carrying the spindles is modified and for the purpose of protecting the operatives against accidents and at the same time to facilitate erection there is placed at the rear over the opening in the supporting frame a cover secured by means of screws by which the access of dust and fibres from the spinning room into the cavity within the supporting frame is avoided.

In order that each of the parts of the supporting frame carrying the spindles, of which the machine is composed, may be securely connected to the adjacent part, each section of the supporting frame is provided with a labyrinthine channel on its end faces which in building up the frame may be filled with a plastic substance or cement or with metal of relatively low melting point, whereby the respective parts or sections of the supporting frame may be conveniently and effectively connected. The lower part of the supporting frame carrying the spindles generally takes the form of that first described in which the transmission of movement to the spindles is effected by means of cords or bands.

In the accompanying drawings is represented a construction according to the invention by way of example.

Figure 1 is a section of the supporting frame carrying the spindles, in which is indicated a spindle, a support for the driving spindle, and the driving wheel.

In Figure 2 two sections of the driving spindle are represented with the driving wheels, the separating sleeves, the spindle driving supports and the means provided at the extremities of the sections of the driving spindle for their connection.

Figure 3 indicates the manner in which two consecutive or adjacent sections of the supporting frame may be connected.

Figure 4 is a section on the line 4—4 of Figure 3.

In Figure 1, the part 1 represents the exterior form of a spindle which is mounted on the supporting frame 2 by its introduction through the hole 3 and by the nut 4 which presses against the interior face of the support. The endless worm or wheel 5 is mounted at the lower end of the spindle and receives its movement by engagement with the corresponding driving wheel 6 mounted upon the common driving spindle 7. This latter is suspended in the support 8 by means of the ball bearing 11, and the ring of the support 8 is split at 9 for the engagement of the ball bearing, and is caused tightly to engage the exterior ring of the ball bearing by means of a screw-threaded pin 10.

The support 8 is provided with a screw-threaded part 12 upon which screw the nuts 14, 14. The part 12 passes through a hole 13 of larger diameter in the upper part of the supporting frame 2 and is fixed in position by the nuts 14, 14.

The protecting cover 16 is mounted in position by means of screws 15, 15.

Figure 2 is a longitudinal section of the common spindle 7 carrying the driving wheels 6 and serving for two adjacent or consecutive parts of the machine. In the figure the references 2, 8, 11, 12, 13, 14, apply to the same parts as in Figure 1.

The wheels 6, 6 are mounted in their position at the same distance apart as the spindles 1 by the tubes or sleeves 17 which at the same time serve to secure the wheels 6, 6 rigidly to the common driving spindle 7 by means of the nuts 19, 20 mounted upon the screw-threaded extremities 18, 18 of the adjacent sections of the spindle 7. The nuts 19, 20 are provided to form a coupling between the said sections of the spindle 7 and for the purpose one of them, 19, is provided, for example, with a projection or tooth 21 capable of engaging freely in a corresponding recess 22 in the nut 20 so as to permit any variation due to expansion of the adjacent sections of the spindle 7 that may occur and to ensure that all movements of one section of the spindle are transmitted to the other.

In Figure 3 the figures 2, 15, 16 are applied to the same parts as in Figures 1 and 2. The channel 23, in the form of an L, is provided at the extremity of the transverse section of the parts of the supporting frame 2 and thus on one section being brought into position in contact and in register with another on the line 25 a closed channel is formed by the adjacent parts, serving for the introduction by suitable means of a jointing cement or metal

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I claim:—

1. In machines for continuous spinning and twisting having a plurality of spindles, a driving spindle and means for mounting the driving spindle, comprising a supporting frame for the spindles, supports for the driving spindle, which supports are provided with suspension parts which traverse the supporting frame through holes giving clearance, whereby lateral adjustment of the supports may be effected to facilitate adjustment of the engagement of the gears by which transmission of movement to the spindle is effected, and screw-threaded nuts screwing upon the said suspension parts and between which the supporting frame is engaged for the retention of the supports in the relative position of adjustment.

2. In machines for continuous spinning and twisting as specified in claim 1, a driving spindle in sections and pairs of nuts respectively upon the extremities of adjacent sections of the driving spindle, the nuts of each pair of nuts being provided with means of engagement in the form of a projection on one nut engaging a recess in the other nut, substantially as described.

3. In machines for continuous spinning and twisting as specified in claim 1, a supporting frame formed as a protecting casing for the driving gear and having an opening at one side to permit the mounting therein of the driving spindle and transmission gear, and a cover for the said opening, substantially as described.

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