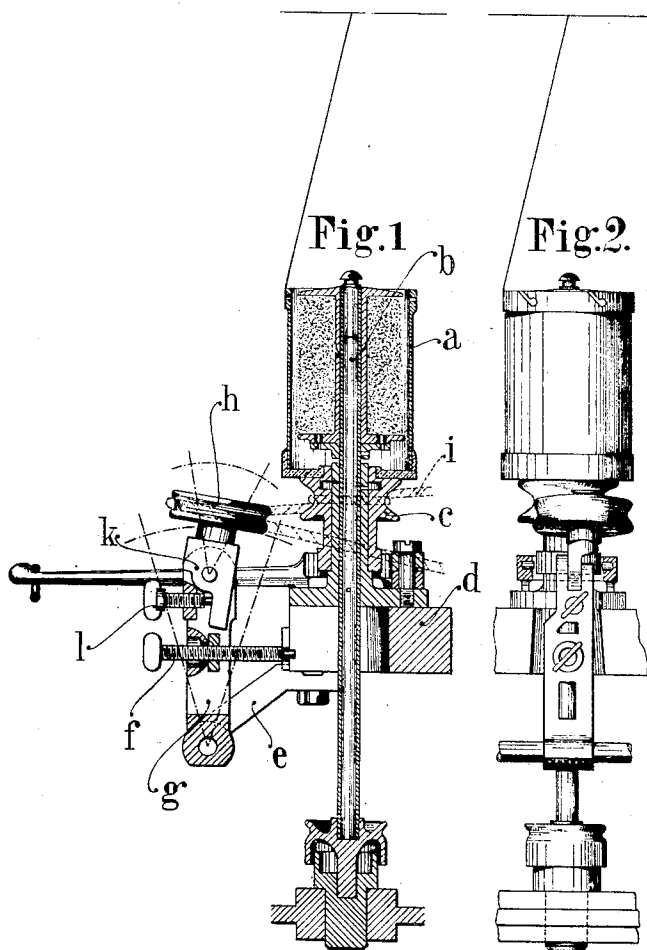


I. ETRICH.
 DRIVING DEVICE FOR THE SPINDLES OF SPINNING MACHINES.
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Patented Oct. 29, 1912



Witnesses
 J. Rabinowitz
 R. Imbstein

Inventor
 Ignaz Etrich
 by B. Singer
 Atty

UNITED STATES PATENT OFFICE.

IGNAZ ETRICH, OF OBERALTSTADT, NEAR TRAUTENAU, AUSTRIA-HUNGARY.

DRIVING DEVICE FOR THE SPINDLES OF SPINNING-MACHINES.

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To all whom it may concern:

Be it known that I, IGNAZ ETRICH, a subject of the Emperor of Austria-Hungary, residing at Oberaltstadt, near Trautenau, Bohemia, Austria-Hungary, have invented certain new and useful Improvements in Driving Devices for the Spindles of Spinning-Machines, of which the following is a specification.

- 10 With the known spindle constructions, the spindles of spinning machines or their hecks are rotated by means of the cord whirl which connects a cord pulley driven by and situated on the main shaft of the spinning machine with the driving whirl on the spindle or heck. A separate whirl cord is generally provided for each spindle of a bank and all cords are driven in common by the driving cord pulley (drum), which is arranged on the main driving shaft. For spinning purposes this method of driving is accompanied by disadvantages, inasmuch as all the whirl cords are not equally stretched and these disadvantages still further increase during the working to the disadvantage of the spinning process. The unequal tension of the cords of the whirl results in the various spindles of the same bank not rotating at the same speed and it is impossible to prevent a slackening of the speed of the various spindles more particularly during the working.

The present invention refers to a driving device for the spindles of spinning machines, which does away with the above mentioned disadvantages and permits of exactly regulating the tension of the cord of the whirl for each spindle, especially during the working. With this object in view according to the present invention a special tensioning device in the form of an adjustable lever is provided for the whirl cord of each spindle, which lever permits of equalizing the tension in the various cords, and in a slackening of the tension, the tension of each separate cord can be brought up to the exact degree necessary for obtaining a perfect spinning process.

I shall now describe my invention with reference to the accompanying drawing showing one form of construction of the present invention, in which,—Figure 1, is a side elevation partly in section, Fig. 2, is a front elevation.

For the form of construction shown as example a spindle having a bell-shaped heck

a has been chosen, within which the spindle *b* formed as tube for receiving the lubricant can freely rotate, and which by means of the driving whirl *c* fixed on the fly *a* is caused to rotate. An arm *e* is provided on the spindle beam *d* and carries a pivoting arm *g* adjustable as regards its inclination by means of a manually operable set-screw *f*. A groove-pulley or roller *h*, is provided at the upper end of the arm *g* and around which the cord *i* coming from the driving pulley and looped around the driving whirl *c* is conducted back directly to the driving pulley. As the driving whirl is driven and completely surrounded by the tensioned side of the driving cord, so any lateral strain on the bearing is avoided, thus permitting a very easy driving, the bell-shaped heck *a* acting like a free-wheel. By the adjustment of the arm *g*, through set-screw *f* which is situated so as to be conveniently actuated by the worker, the tension of the whirl cord may be varied and as a similar arrangement is provided for every spindle, each spindle of the bank can be separately regulated. The roller *h* is arranged on the upper end of the arm *g* pivoting on a special support *k* and can be fixed at various inclinations by means of the manually operable set-screw *l*. By the adjustment of the support *k*, the roller *h* can be exactly adjusted corresponding to the direction of the tension of the cord. If the tension in one of the whirl cords has slackened so that there is danger of the spindle in question soon turning at a reduced speed, then it will only be necessary to manually turn the set-screw *f* thereby maintaining the necessary tension in the whirl cord. Owing to the altered position of the arm *g* resulting from this adjustment, the position of the roller *h* will also be varied so that in order to obtain a uniform running on and running off of the cord *i*, the roller *h* can be adjusted by means of manually operating the set-screw *l*. By means of this adjustment of the various stretching of the rollers of the spindles of a bank, a uniform tensioning of all the whirl cords is obtained, so that the speed of the various spindles and hecks is maintained at the required degree, thus favorably affecting the spinning process and furthermore resulting in considerable economy in the use of cords.

The above described arrangement can also be applied with spindles of other construction, for example with all those spindles in

which the spindles themselves or the heels are driven by a whirl cord.

Having thus described my invention, what I claim is:—

5 1. In a spinning apparatus, the combination with a revolubly mounted spindle member provided with a flexible drive, of means for independently adjusting the tension of said flexible drive in coöperation with said
10 spindle member, such means including an arm adapted to swing from a fixed center, to and from said spindle member, a set screw for actuating said arm to an adjusted position, a second arm pivoted to the free end of
15 said first mentioned arm, a pulley carried by said second mentioned arm and adapted to receive said flexible drive, the plane of movement of said second mentioned arm being substantially in the line of tension of said
20 drive, and means for actuating said second mentioned lever for positioning said pulley relative to the direction of tension of the said drive.

25 2. In a spinning apparatus, the combination with a revoluble mounted spindle member, provided with a flexible drive, of means for independently adjusting the tension of said flexible drive, in coöperation with said spindle member, such means including
30 a pulley about which said flexible drive is trained, a device movable to and from said spindle member in the line of tension of said drive, a support for said pulley pivotally carried by said device, and manu-
35 ally operable means for actuating said support to rigidly position said pulley relative to the direction of tension of said drive.

3. In a spinning apparatus, the combination with a revolubly mounted spindle member provided with a flexible drive, of mechanism movable toward or from said spindle member at the opposite side thereof from the source of power of the flexible drive, manually operable means for actuating and rigidly retaining the mechanism against tension of said flexible member, and a pulley carried by said mechanism about which the flexible drive is trained, substantially as and for the purpose set forth.

4. In a spinning apparatus, the combination with a revolubly mounted spindle member provided with a flexible drive, of mechanism movable toward or from said spindle member at the opposite side thereof from the source of power of the flexible drive, manually operable means for actuating and rigidly retaining said mechanism against tension of said flexible member, a support carried by said mechanism, a pulley carried by said support, the latter being movable to position said pulley for rotation in various planes with respect to the direction of tension of said drive, and manually operable mechanism for actuating and rigidly retaining said support in an adjusted position with respect to said first mentioned mechanism, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

IGNAZ ETRICH.

Witnesses:

JUG. RUDOLF THEUMER,

JUG. VICTOR BAAR.