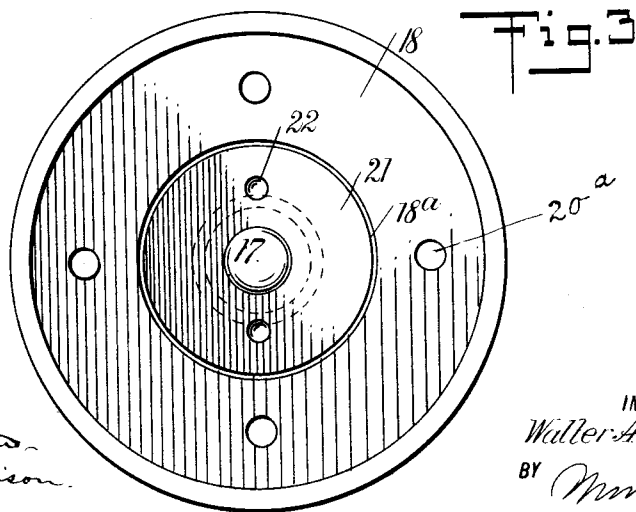
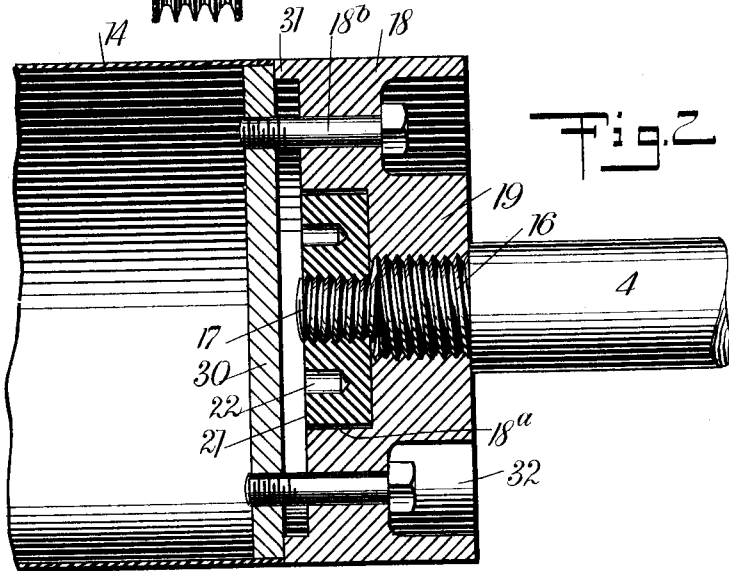
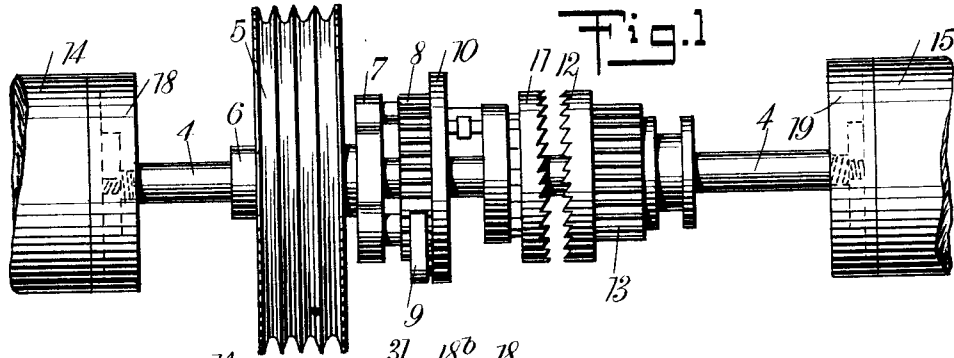


W. A. GREAVES.
 CENTER SHAFT HEAD.
 APPLICATION FILED JUNE 26, 1911.

1,063,790.

Patented June 3, 1913.



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WALTER ANTHONY GREAVES, OF STAFFORD SPRINGS, CONNECTICUT.

CENTER-SHAFT HEAD.

1,063,790.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed June 26, 1911. Serial No. 635,292.

To all whom it may concern:

Be it known that I, WALTER A. GREAVES, a citizen of the United States, and a resident of Stafford Springs, in the county of Tolland and State of Connecticut, have invented a new and Improved Center-Shaft Head, of which the following is a full, clear, and exact description.

My invention relates to center shaft heads of the type used more particularly upon spinning mules.

More specifically stated, my invention comprehends a simple and efficient device by aid whereof the center shaft of a spinning mule may be readily connected with or detached from the head of a cylinder to be driven by said shaft, the parts being so formed and operated that the shaft and head are not readily disengaged except when this is desired by the operator.

More particularly stated I provide a center shaft with a threaded neck of smaller diameter than the body portion of said shaft, this threaded neck in turn being provided with a reduced portion also threaded, the thread of the neck being of opposite pitch to the thread of the reduced portion and the thread of the neck fitting directly into the head, and the reduced portion fitting into a nut carried within a recess or pocket with which the head is provided.

Reference is to be had to the accompanying drawings forming a part of this specification in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is fragmentary plan view of a center shaft, and parts carried by the same; Fig. 2 is an enlarged central section through one end of the shaft where it engages the head of the adjacent winding cylinder; and Fig. 3 is an elevation of the head.

The center shaft is shown at 4, and at 5 is a four-groove rim band pulley which is provided with a hub 6.

A steel clipper spring is shown at 7, and at 8 is the backing-off ratchet wheel. The pawl associated with this wheel is shown at 9 and is pivotally mounted upon a flange 10. A clutch member 11 is secured rigidly upon the center shaft 4, and mating this clutch member is another clutch member 12.

A winding clutch gear is shown at 13.

The parts above described are of the usual or any preferred construction.

Winding cylinders are shown at 14, 15,

and are substantially duplicates of each other, the only difference between them being hereinafter described. The center shaft is provided at each of its ends with a threaded neck 16 having a reduced portion 17, the threads carried by the necks 16 being of opposite pitch from each other, and the threads carried by the reduced portions 17 being also of opposite pitch from each other, the threads carried by one reduced portion, however, being also of opposite pitch from the threads carried by the adjacent neck.

Heads are shown at 18, 19, and are each of a form which can be understood from Fig. 2, this figure showing the construction of the head 18. This head is provided with a hub portion 19^a through which extends a threaded opening, said threaded opening mating the threaded neck 16. The head 18 is also provided with a recess or pocket 18^a. Extending through the head are bolts 18^b which engage a disk 30 rigidly and permanently secured within the cylinder end. A nut 21 fits neatly, but loosely, into the recess 18^a and is provided with wrench holes 22 to facilitate the turning of this nut relatively to the reduced portion 17. Thus by loosening the bolts 18^b at each end of the shaft, the latter may be removed as a whole from between the cylinders 14 and 15. Each head is provided with an annular channel 32 for accommodating the heads of the bolts 18^b, as will be understood from Fig. 2.

The operation of my device is as follows:— Whenever it is desired to disconnect the head 18, 19, or either of them from the center shaft, the operator first removes the shaft as above described, and then applies a wrench to the nut 21, portions of the wrench extending into the wrench holes 22. The nut 21 being thus turned, it is removed from the recess 18^a and from the threaded portion 17. The holes in the head 18, for receiving the bolts 18^b, are shown at 20^a in Fig. 3. These holes also serve for receiving a wrench which may be applied to the head 18 in order to hold the same or to turn it. It may not in all instances be necessary to apply a wrench to the head 18, but it is desirable that a wrench should be applied to the nut 21, the wrench holes 22 being peculiarly adapted for this purpose. In order to loosen the nut 21, it is turned in a direction opposite to that in which the head 18 is turned, or else the head 18 is simply held still while the nut 21 is turned.

As above explained, the direction of rotation necessary to secure the head 18 upon one end of the shaft is contrary to the direction of rotation for securing the opposite head 19 upon the other end of the shaft. Similarly, the direction in which the nut 21 must be turned in order to disengage it from its position upon one end of the center shaft is contrary to the direction of rotation necessary to disengage the corresponding nut 21 from the opposite end of the shaft. Suppose, now, that the shaft 4 be subjected to its strain or torque in one direction. This tends to jam one of the heads 18 upon the adjacent end of the shaft and to loosen the other head 19, but all these tendencies are neutralized by the contrary tendency of the nut 21 in the recess 18^a to loosen, whereas the other nut at the opposite end of the shaft tends to tighten. The net result is that no matter in what direction the center shaft 6 may be turned so as to subject it to torque, the tightening of either a nut or a head at one end of the shaft will just neutralize the effort to loosen the corresponding head or nut at the same end of the shaft so that neither head at either end of the shaft, or

neither nut at either end of the shaft is loosened or tightened to any extent whatsoever.

The apparatus above described alleviates a great trouble in the operation of spinning mules, to wit, the well known tendency of the center shaft to work loose from the heads of the winding cylinders.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

The combination with a cylinder, an internal disk secured flush with the cylinder end, a center shaft, a head threaded on the shaft end which is adapted to abut the cylinder end and its disk, means to removably lock the shaft head to the said cylinder disk, and a rotatable member also threaded on the shaft for rigidly locking the said head upon the said shaft end.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER ANTHONY GREAVES.

Witnesses:

JOHN WILLIAM DYKES,
NORMAN ADELBERT GOLD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."