STOP MOTION FOR SPINNING MACHINERY

Inventors:

Joseph E. Cushman

Norman O. Stanier

By Attorney

Anonymous
JOSEPH E. CUSHMAN AND NORMAN C. STANTON, OF STONINGTON, CONNECTICUT, ASSIGNORS TO ATWOOD MACHINE COMPANY, OF STONINGTON, CONNECTICUT, A CORPORATION OF NEW YORK.

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To all whom it may concern:

Be it known that we, JOSEPH E. CUSHMAN and NORMAN C. STANTON, citizens of the United States, and residents of Stonington, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Stop Motions for Spinning Machinery, of which the following is a specification:

In stop motions now in use, the take-up shaft and the gears thereon revolve at all times, thereby causing the loose or broken ends of the thread to become wound upon and entangled by the shaft and gears, causing unnecessary waste.

The object of our invention is to provide a stop motion in which, when the thread breaks, the take-up shaft gears are automatically disconnected from the take-up shaft without being disconnected from the feed roll gears, and the gears are also locked against rotary movement, thereby eliminating the tendency of the thread to become entangled in the gears as heretofore.

A practical embodiment of our invention is represented in the accompanying drawings, in which—

Fig. 1 represents in detail cross section so much of a stop motion as will give a clear understanding of our invention, the movable stop motion rod and its cam being shown in full lines in their normal position and in dotted lines in the position they assume when a thread breaks.

Fig. 2 represents a detail side view with the parts in their normal running position.

Fig. 3 represents a similar detail view with the parts in their disconnected and stopped position.

Fig. 4 represents a detail side view, partly in section, with the parts in their normal running position.

In the present instance I have shown a pair of feed rolls 1 and 2 suitably mounted in a bracket 3. These feed rolls are provided with gears 4 and 5.

The take-up or drive shaft is denoted by 6 and it is provided with a clutch, the relatively fixed and movable members of which are denoted by 7 and 8. The movable member 8 of the clutch is held normally in driving engagement with the relatively fixed member 7 by means of a spring 9 interposed between the movable member and a collar 10 fast on the take-up shaft 6. The movable member 8 of the clutch is provided with a gear 11 which is at all times in mesh with the gears 4 and 5 of the feed rolls 1 and 2.

This movable clutch member 8 is also provided with a conical portion 12 which is located in position to be engaged by a cam 13 carried by the movable bar 14 of any well known or approved stop motion.

As the rod 14 is moved in the well known manner by the stop motion, the cam 13 will be brought into engagement with the conical portion 12 of the relatively movable clutch member and move the clutch member laterally out of engagement with the fixed member carried by the take-up shaft, thus rendering the geared connection between the take-up shaft and feed rolls inoperative.

The stop motion rod 14 also carries a projection 15 which is moved into engagement with the teeth of the take-up shaft gear 11 after the movable clutch member has been disconnected from the fixed clutch member so as to lock the take-up shaft and feed roll gears against rotary movement. When the stop motion rod is moved in the opposite direction, the driving connection between the take-up shaft and the feed rolls will be reconnected.

It will be seen that the take-up shaft and feed roll gears are at all times in mesh whether the take-up shaft gear is or is not locked to its shaft.

The moving parts hereinabove described may be covered by a suitable shield, (not shown) if so desired.

It is evident that various changes may be made in the construction, form and arrangement of the several parts without departing from the spirit and scope of our invention; hence we do not wish to limit ourselves to the particular embodiment herein shown and described, but—

What we claim is:

1. In a stop motion, a feed roll, a take-up shaft, a geared connection between them, and automatic means for shifting the take-up shaft gear out of its
2. In a stop motion, a pair of feed rolls, a take-up shaft, a geared connection between them, and automatic means for shifting the take-up shaft gear out of its driving connection with the take-up shaft without disconnecting it from the feed roll gears when the thread breaks.

3. In a stop motion, a feed roll, a take-up shaft, a geared connection between them, and a movable stop motion rod carrying a cam arranged to move the take-up shaft gear out of its driving connection with the take-up shaft without disconnecting it from the feed roll gear, when the thread breaks.

4. In a stop motion, a pair of feed rolls, a take-up shaft, a geared connection between them, and a movable stop motion rod carrying a cam arranged to move the take-up shaft gear out of its driving connection with the take-up shaft without disconnecting it from the feed roll gears, when the thread breaks.

5. In a stop motion, a feed roll, its gear, a take-up shaft, a clutch thereon comprising relatively fixed and movable members, the movable member having a gear meshing with the feed roll gear, and a movable stop motion rod carrying a cam arranged to engage the movable clutch member to disconnect it from the fixed clutch member without disconnecting it from the feed roll gears, when the thread breaks.

6. In a stop motion, a pair of feed rolls, their gears, a take-up shaft, a clutch thereon comprising relatively fixed and movable members, the movable member having a gear meshing with the feed roll gears, and a movable stop motion rod carrying a cam arranged to engage the movable clutch member to disconnect it from the fixed clutch member without disconnecting it from the feed roll gears, when the thread breaks.

7. In a stop motion, a feed roll, a take-up shaft, a geared connection between them, and automatic means for disconnecting the geared connection from the take-up shaft and locking the gears against rotary movement.

8. In a stop motion, a pair of feed rolls, a take-up shaft, a geared connection between them, and automatic means for disconnecting the geared connection from the take-up shaft and locking the gears against rotary movement, when the thread breaks.

9. In a stop motion, a feed roll, its gear, a take-up shaft, a clutch thereon comprising relatively fixed and movable members, the movable member having a gear meshing with the feed roll gear, a movable stop motion rod carrying a cam arranged to disconnect the clutch members without disconnecting the gears, and a projection arranged to engage the movable clutch member gear to lock the gears against rotary movement, when the thread breaks.

10. In a stop motion, a pair of feed rolls, their gears, a take-up shaft, a clutch thereon comprising relatively fixed and movable members, the movable member having a gear meshing with the feed roll gears, a movable stop motion rod carrying a cam arranged to disconnect the clutch members without disconnecting the gears, and a projection arranged to engage the movable member gear to lock the gears against rotary movement, when the thread breaks.

In testimony, that we claim the foregoing as our invention, we have signed our names this 3rd day of October, 1921.

JOSEPH E. CUSHMAN.
NORMAN C. STANTON.