

April 28, 1931.

H. W. THATCHER

1,803,286

CLOTH ROLL FOR LOOMS

Filed April 10, 1929

Fig. 1.

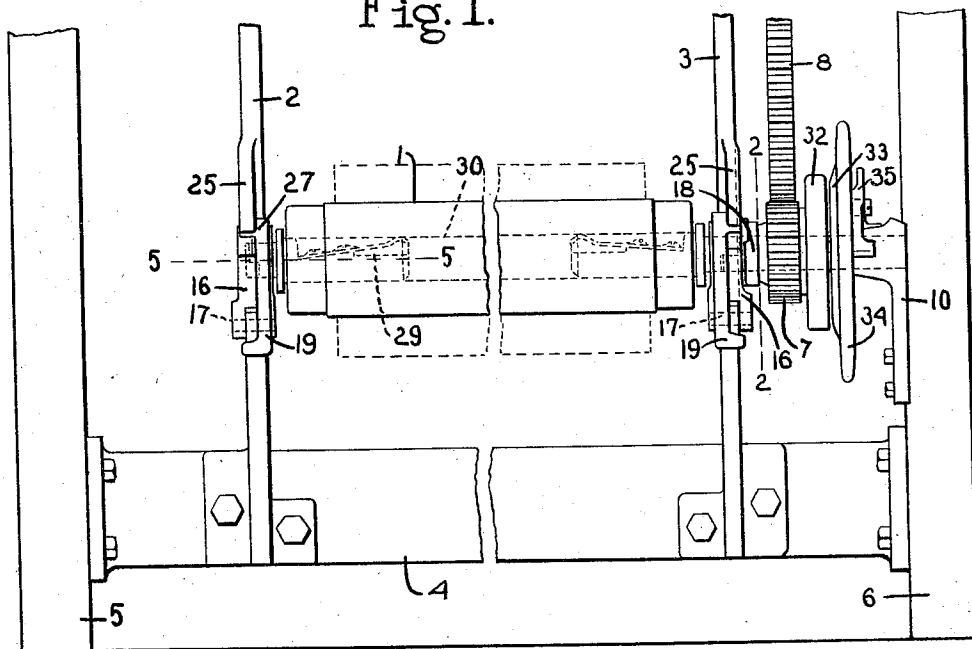


Fig. 2.

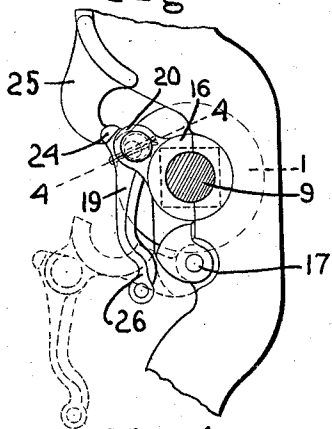


Fig. 3.

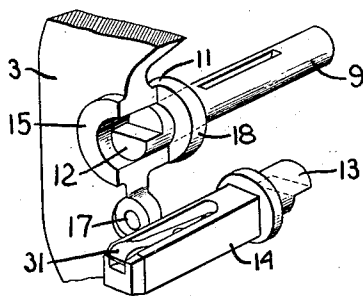


Fig. 4.

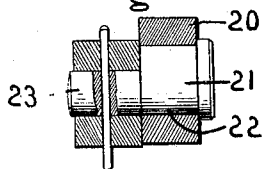
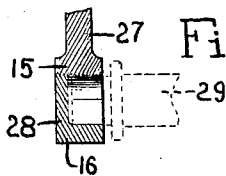


Fig. 5.



Inventor
Harry W. Thatcher
by *Heard Smith & Tennant.*
Attys.

UNITED STATES PATENT OFFICE

HARRY W. THATCHER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO DRAPER CORPORATION, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE

CLOTH ROLL FOR LOOMS

Application filed April 10, 1929. Serial No. 354,040.

This invention relates to mechanism for winding material upon a roll and more particularly to means for detachably and rotatably mounting the roll.

5 The general object of the invention is to provide means to support the roll while the material is being wound thereon and permit the full roll to be readily removed.

10 The object of the invention is further to provide a roll which is driven by means of its gudgeon or shaft and which may be readily detached from its driving means to remove a full roll and permit replacement of an empty roll.

15 The object of the invention is further to provide an improved construction by means of which the driving shaft has a transversely detachable interlocking connection with a gudgeon on the roll.

20 Other objects and features will more fully appear from the following description in connection with the accompanying drawings and will be particularly pointed out in the claims.

In the drawings:

25 Fig. 1 is a partial front elevation of a loom embodying the invention.

Fig. 2 is a section on line 2—2 Fig. 1 illustrating the construction and operation of the separable bearing.

30 Fig. 3 is a perspective view showing in detail the construction of the detachable connection between the driving shaft and the gudgeon of the roll with the gudgeon and shaft disengaged.

35 Fig. 4 is a cross section on line 4—4 Fig. 2 illustrating the eccentric locking device for the separable bearing.

40 Fig. 5 is a cross section on line 5—5 Fig. 1 illustrating the construction of the left hand bearing for the roll.

45 The invention may be applied to various types of machines and used in various capacities where it is desired to wind material upon a roll and wherein it is desired that the full roll be readily removed from the machine. The invention is illustrated as applied to a loom merely to illustrate the principles involved and it is to be understood that the invention may be applied to other machines.

In certain types of looms it is desirable to drive the cloth roll by means of its shaft or gudgeon from some rotating part of the loom. Heretofore in such looms when the roll became filled it has been necessary to unwind the cloth from the roll while it is still in the loom which is a costly waste of time. The present invention provides means to remove the full roll quickly and easily. It also provides for the removal of the roll in a direction substantially horizontally and in a direction normal to the axis of said bearings.

55 A cloth roll 1 is rotatably supported in the loom by means of the frame members 2 and 3 which in turn are supported by a cross girder 4 extending between the loom sides 5 and 6. The roll is driven by means of a friction device which will hereinafter be more fully described. One member of the friction device has secured to it a gear 7 which meshes with an intermediate gear 8 which is driven from the usual take-up mechanism, any other suitable means however may be employed to drive the roll without departing from the invention. The construction thus far described is usual and forms no part of the invention.

60 The connection between the drive and the roll is novel and under normal running conditions is a positive driving connection but is constructed so that it may be disconnected. To accomplish this result the usual shaft or gudgeon on the cloth roll at the driving end is made in two parts. A short shaft 9 is journaled at one end in a bracket 10 secured to the loom side 6 and is supported at its other end in a special journal indicated generally at 11. The inner end 12 of the shaft 9 extends part way into the journal 11 and has its end cut in a central plane for a short distance and a semi-cylindrical portion removed therefrom.

65 The end 13 of a co-operating gudgeon 14 is shaped similarly to the end 12 of the shaft 9 so that when these two ends are engaging and in proper driving relation they form a continuous cylindrical section of shaft which turns in the journal thus providing a positive driving connection between the shaft 9 and the roll 1. The particular shape of the

interengaging ends of the shaft and gudgeon however is immaterial and any suitable construction may be used within the scope of the accompanying claims.

The journal 11 is made in two sections one section 15 of which is formed integral with the frame member 3 and the other section 16 of which is pivoted thereon at 17 to swing from closed to open position. As clearly shown in Fig. 3 the gudgeon 14 is transversely detachable from the shaft 9 permitting its ready removal when the movable section 16 of the journal 11 is swung into open position. A short length of the journal 11 is in the form of a closed bearing 18 which embraces the cylindrical portion of the shaft 9 adjacent to its mutilated inner end. The purpose of this bearing is to retain the shaft 9 in proper alignment when the journal is opened.

The movable section 16 of the journal is locked in closed position by means of a manually operable eccentric locking member 19 which is pivotally supported at one end in an ear 20 upon the member 16. The pivotal means consists of a stud 21 having a portion 22 which rotates concentrically within the ear 20 and another portion 23 the axis of which is eccentric to the axis of the portion 22. The locking member 19 is mounted upon the eccentric portion 23 and is keyed thereto by a pin. The member 19 also has a lug 24 thereon which is positioned to engage the inner edge of an abutment 25 upon the frame member 3 when the parts are in locked position.

To unlock or disengage the locking means the arm 26 is raised which causes the lug 24 to be disengaged from the abutment and due to the combined effect of the eccentricity of the section 23 of the stud 21 upon which it is mounted and the motion it would have if the two sections of the stud 21 were in axial alignment, the lug 24 assumes a position which will permit the movable member 16 to open into the position shown in dotted lines Fig. 2. To lock the bearing the movable member is swung up into engagement with the other member of the journal and the arm 19 is swung down into the full line position shown in Fig. 2.

The other end of the roll is herein shown as rotatably supported in the frame member 2 in a journal 27 which is similar to the journal 11 with the exception that the section of closed bearing 18 is omitted and the movable member 16 has an end wall 28 which closes the end of the journal to prevent endwise movement of the gudgeon 29 and the roll 1.

While the gudgeons 14 and 29 may be fixedly secured in the rolls they are preferably removable from the roll and may therefore be employed as bearings for different rolls. Furthermore the removability of the gudgeons shortens the effective length of the

rolls thus enabling them to be stored in a smaller space.

In the preferred embodiment of the invention the ends of the roll are provided with sockets of rectangular or other non-circular cross section and the portions of the gudgeons which enter the sockets are complementary thereto. Desirably resilient means are provided to hold the gudgeons tightly in their sockets. As illustrated herein the gudgeons are recessed and leaf springs 31 are mounted in recesses and project beyond the surface of the gudgeons in such a manner as to engage the adjacent walls of the socket thus increasing the friction between the gudgeons and the walls of the sockets.

As previously stated the roll may be driven in any manner but by way of illustration we have shown generally a friction-drive which automatically compensates for the varying diameter of the roll as the cloth is wound thereon. The gear 7 is fixed to one member 32 of the friction device and is free to rotate upon the shaft 9 and frictionally engages the member 33 which is secured to the shaft 9 and is releasable therefrom. If it be desired to rotate the roll manually independently of the driving gears a lever 35 is provided to disengage the frictional connection between the members 32 and 33 at which time the roll may be rotated by means of the hand wheel 34 which is a part of the member 33.

When the roll 1 becomes filled it is a simple matter to remove it from the loom and replace an empty one therein without disturbing any part of the mechanism. The two journals are unlocked and swung open which permits the roll and gudgeon bodily to be removed. If necessary the drive shaft 9 may be turned slightly as above described by means of the hand wheel in order to position the detachable connection approximately as shown in Fig. 3 to permit the transverse disengagement of the gudgeon therefrom.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. A machine of the character described comprising a frame having separable bearings to receive the shaft or gudgeons of a roll and to permit removal thereof substantially horizontally in a direction normal to the axis of said bearings, a driven roll-actuating shaft extending into one of said bearings, a roll having gudgeons fitting said bearing and detachable interengaging means upon the ends of said driven shaft and the adjacent gudgeon retained in interengaging relation by the bearing embracing them when said bearing is in closed position.

2. A machine of the character described comprising a frame having separable bearings to receive the shaft or gudgeons of a roll and to permit removal thereof substantially horizontally in a direction normal to the axis

of said bearings, a driven roll-actuating shaft extending into one of said bearings, an extension from said bearing having a closed bearing for said shaft, a roll having gudgeons fitting said bearings and detachable interengaging means upon the ends of said driven shaft and the adjacent gudgeon retained in interengaging relation by the bearing embracing them when said bearing is in closed position.

3. A machine of the character described comprising a frame having separable bearings to receive the shaft or gudgeons of a roll and to permit removal thereof substantially horizontally in a direction normal to the axis of said bearings, a driven roll-actuating shaft extending into one of said bearings, a roll having gudgeons fitting said bearings, the adjacent ends of said shaft and gudgeon having complementary overlapping semi-cylindrical sections retained in interengaging relation by the bearing embracing them when said bearing is in closed position.

4. A machine of the character described comprising a frame having separable bearings to receive the shaft or gudgeons of a roll and to permit removal thereof substantially horizontally in a direction normal to the axis of said bearings, a driven roll-actuating shaft extending into one of said bearings, a roll having gudgeons fitting said bearings and detachable interengaging means upon the ends of said driven shaft and the adjacent gudgeon retained in interengaging relation by the bearing embracing them when said bearing is in closed position.

5. A machine of the character described comprising a frame having separable bearings to receive the shaft or gudgeons of a roll and to permit removal thereof substantially horizontally in a direction normal to the axis of said bearings, a driven roll actuating shaft extending into one of said bearings, a roll having gudgeons fitting said bearings, detachable interengaging means upon the ends of said driven shaft and the adjacent gudgeon retained in interengaging relation by the bearing embracing them when said bearing is in closed position, and levers pivotally mounted upon the movable sections of the respective bearings having eccentric means engaging complementary sockets in said frame operable by a swinging movement of said levers to close and lock said separable bearings.

6. A machine of the character described comprising a frame having separable bearings to receive the shaft or gudgeons of a roll and to permit removal thereof substantially horizontally in a direction normal to the axis of said bearings, a driven roll-actuating shaft extending into one of said bearings, a roll having gudgeons fitting said bearings, the adjacent ends of said shaft and gudgeon having complementary overlapping

semi-cylindrical sections retained in interengaging relation by the bearing embracing them when said bearing is in closed position and means including a releasable clutch for rotating said driven shaft, and manually operable means for rotating said shaft into position to permit substantially horizontally disengagement of the semi-cylindrical ends of said gudgeons and said shaft.

7. A machine of the character described comprising a frame having separable bearings to receive the shaft or gudgeons of a roll and to permit removal thereof substantially horizontally in a direction normal to the axis of said bearings, a driven roll-actuating shaft extending into one of said bearings, having a semi-cylindrical end portion, a roll having removably inserted in its ends like gudgeons fitting said bearings and provided with semi-cylindrical end portions complementary to that of said shaft and retained in interengaging relative position by the bearing embracing them when said bearing is in closed position.

8. A machine of the character described comprising a frame having separable bearings to receive the shaft or gudgeons of a roll and to permit removal thereof substantially horizontally in a direction normal to the axis of said bearings, a driven roll-actuating shaft extending into one of said bearings having a semi-cylindrical end portion, a roll having interchangeable gudgeons provided with non-circular shank portions fitting complementary axial sockets in the roll and having cylindrical journals extending therefrom provided with semi-cylindrical end portions complementary to that of said shaft, one of said journals being retained in interengaging relation with said shaft by the bearing embracing them when said bearing is in closed position.

In testimony whereof, I have signed my name to this specification.

HARRY W. THATCHER.

115

120

125

130