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CONTROL MECHANISM IN DOBBIES FOR CONTROLLING THE HEALD
FRAMES IN A LOOM
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FIG. 1

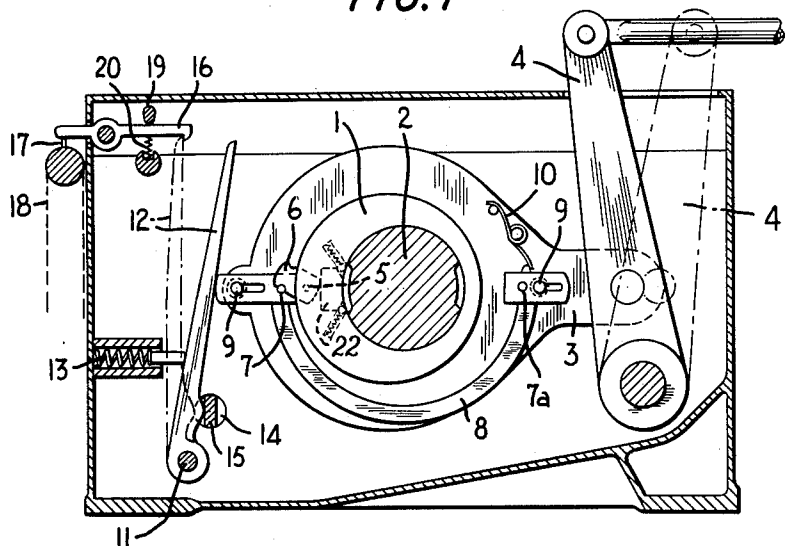
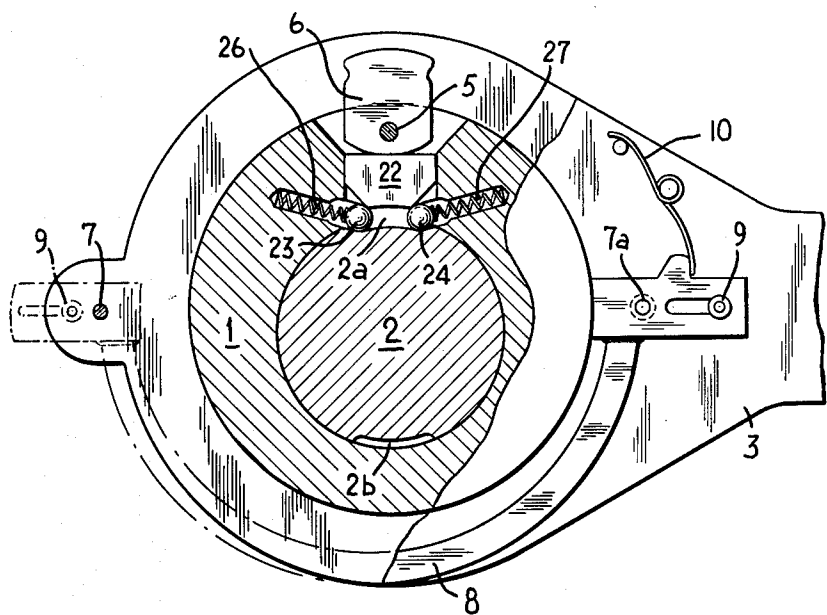


FIG. 2



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CONTROL MECHANISM IN DOBBIES FOR CONTROLLING THE HEALD FRAMES IN A LOOM
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2 Claims. (Cl. 139—66)

The present invention relates to a control mechanism in dobbies for controlling the heald frames in a loom and has as a primary object providing a control mechanism which is of simple construction and which reduces failures in operation to a minimum.

With this and other objects in view which will become apparent later from this specification and the accompanying drawings which are cross sections of a dobby provided with control mechanism according to the invention. I provide a control mechanism for a dobby, comprising in combination: a housing a driving shaft journaled in the housing, a coupling device operative automatically during rotation of the driving shaft is provided and an eccentric having two extreme positions alternately coupled and uncoupled to the driving shaft by the coupling device. A heald shaft is operatively connected to the eccentric by a connecting rod and is alternately moved into the upper and lower shed position by the eccentric. A semi-circular yoke partly surrounding and slidable relative to the eccentric and a first spring biasing the yoke continuously towards one and the same extreme position provides the coupling device. Control for effecting coupling and decoupling of said eccentric with the driving shaft by the coupling device is provided by a control arm pivotally mounted on a shaft fixed in the dobby housing, a second spring biasing the control arm against the yoke towards the other end or extreme position thereof, a driven cam shaft having a cam biasing the control arm in opposition to said second spring, a rocker hook in its operative position arresting said arm, and a control member controlling said rocker hook for causing it to render the control arm effective and ineffective.

Preferably the rocker hook in its operative position retains the arm in a position remote from the yoke and the control member comprises a pattern card for effecting disconnection with said driving shaft. Pattern card sensing is carried out by a reading needle connected with the rocker hook reading said pattern card, and transmitting its orders to the rocker hook in conformity with perforations in the pattern card.

These and other features of the invention will be readily understood from the following description of a preferred embodiment by way of example with reference to the accompanying drawings, in which FIG. 1 is a cross section of a dobby provided with control mechanism according to the invention, and FIG. 2 is a fragmentary enlarged view illustrating a coupled condition of the dobby in FIG. 1. The drawings omit all details which have no direct reference to the present invention, and illustrate by way of example a section of a control mechanism for controlling a corresponding heald of a loom, not shown. It is understood that similar provisions are made for all of the healds. The coupling and uncoupling of the eccentric to the shaft 2 is effected by a lever 6, which is pivotable about a pivot 5, and which disengages the coupling when it abuts one of the stops 7 or 7a, as illustrated in the drawing.

The stops 7 and 7a are fixed to a yoke 8, which is mounted slidably on pins 9 of the connecting rod 3 and is biased by a spring 10. In the present embodiment the yoke has slots in which the pins 9 are disposed and a

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spring 10 biases the yoke continuously towards the left, i.e., into an extreme position illustrated in FIG. 2.

In order to control the yoke 8, an arm 12 is provided, which is pivotable about an axis 11 and is biased by a spring loaded stop comprising a spring 13 against the yoke 8. The lifting-off of the arm 12 from the yoke 8 or restoration thereof to an arrested position later described, is effected against the bias of the spring 13 by restoration means comprising a cam 15 or eccentric keyed to an auxiliary shaft 14, which rotates in timed relationship with the driving shaft 2. A releasable rocker or arrester hook 16 serves for releasably arresting the arm 12, when the heald shaft has to stay in its basic position, or when the heald shaft has to be returned from the high-shed position to the low-shed position by rotation of the shaft 2 through 180°. The control of the rocker or arrester hook is effected through a reading needle 17 sensing the perforations of a pattern card 18 and by a related cam later described. A constantly rotating camshaft 19 lifts the reading needle for the purpose of allowing advancing the pattern card. Contact of the hook with the camshaft 19 is assured by a spring 20 biasing it into engagement with the camshaft.

In the basic position, the arm 12 is arrested by the rocker or arrester hook 16, provided there is no perforation present in the pattern card, so that, upon rotation of the shaft 14 and cam 15, it cannot be pressed by the spring 13 against the yoke 8. The yoke is kept in its left hand side abutting position by the biasing spring 10. Upon rotation of the eccentric the lever 6 abuts the stop 7a and disengages the coupling as later explained. When the rocker hook 16 is then raised, because a perforation in the pattern card allows its corresponding reading needle 17 to dip in, the arm 12 swings from its position shown in dotted lines into the position shown in full lines, as soon as it is released by the eccentric 15. The arm 12 forces the yoke towards the right into the extreme position illustrated in FIG. 1. Thereby the lever 6 disengages itself from the stop 7a and this allows the lever 6 to allow coupling since it is engaged with a cam slider 22, biased radially away from recesses 2a, 2b on the shaft 2 by coupling means comprising spring loaded elements 23, 24 which are constantly biased toward engaging a recess in the rotating shaft 2. The coupling is engaged when the spring-loaded elements 24 are engaged in either of the recesses in the shaft under control of their respective biasing springs 26, 27. When the arm remains in its unarrested position, the lever 6 abuts the stop 7 after half a turn, during which the coupling raises the heald shaft through the connecting rod 3, and disengages the coupling again, the position illustrated in FIG. 1. In this manner the coupling, and accordingly the position of the heald shaft, can be controlled through the rocker hook 16.

Those skilled in the art will recognize that the cam 22 is slidable in the eccentric, and has beveled surfaces as illustrated for camming the coupling elements 23, 24 into respective housings in the yoke under the control of the lever 6 when it is in abutting relationship with the stops.

What I claim as my invention and desire to secure by Letters Patent is:

1. Control mechanism for a dobby for use in a loom for controlling shedding comprising, a driven shaft, a connecting rod effecting shedding, an eccentric mounted on said shaft for alternate coupling to said shaft and uncoupling therefrom for imparting reciprocable motion to said connecting rod, means comprising a yoke operable between two extreme positions, and a slidable element in said eccentric to selectively allow coupling of the eccentric to said shaft and uncoupling therefrom during rotation of said shaft, means comprising a pivoted arm engageable with said yoke selectively to make it move toward one of

said two extreme positions to allow selective coupling and uncoupling of said eccentric to said driven shaft, means constantly biasing said arm in a direction for engaging said yoke, means operable in accordance with a given desired pattern of shedding for rendering said pivoted arm effective selectively to actuate said yoke to said one extreme position and allow said slidable element to allow selective coupling and uncoupling of said eccentric to said shaft, means constantly biasing said yoke in a direction toward the other extreme position for allowing selective coupling and uncoupling of said coupling element to said driven shaft, coupling means in said eccentric constantly biased to engage said shaft and couple said eccentric thereto and operable under control of said slidable element to a position away from said shaft and uncoupled from said shaft, a pivoted lever actuated selectively by said yoke at said extreme positions to render said slidable element effective to operate said coupling means to said position away from said shaft and uncoupled therefrom.

2. Control mechanism for a dobby for use in a loom for controlling shedding comprising, a driven shaft, a connecting rod effecting shedding, an eccentric mounted on said shaft for alternate coupling to said shaft and uncoupling therefrom for imparting reciprocable motion to said connecting rod, means comprising a yoke operable between two extreme positions, and a slidable element in said eccentric to selectively allow coupling of the eccentric to said shaft and uncoupling therefrom during rotation of said shaft, means comprising a pivoted arm engageable with said yoke selectively to move it toward one of said two extreme positions to allow selective coupling and uncoupling of said eccentric to said driven shaft, means constantly biasing said arm in a direction for engaging said yoke, means for arresting said arm compris-

ing a releasable arrester hook operable in accordance with a given desired pattern of shedding for rendering said pivoted arm effective selectively to actuate said yoke to said one extreme position, spring means constantly biasing said yoke in a direction toward the other extreme for allowing selective coupling and uncoupling of said coupling element, coupling means in said eccentric constantly biased to engage said shaft and couple said eccentric thereto and operable under control of said slidable element to a position away from said shaft and uncoupled from said shaft, a pivoted lever controlled at said extreme positions of said yoke to render said slidable element effective to operate said coupling means to said position away from said shaft and uncoupled therefrom or to allow said slidable element to remain inactive and cause said coupling means to remain coupled, means to actuate said lever at said extreme positions, and means cooperative with said arrester hook to restore the pivoted arm to an arrested condition spaced away from said yoke in position to allow said spring means to move said yoke to said other extreme position.

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