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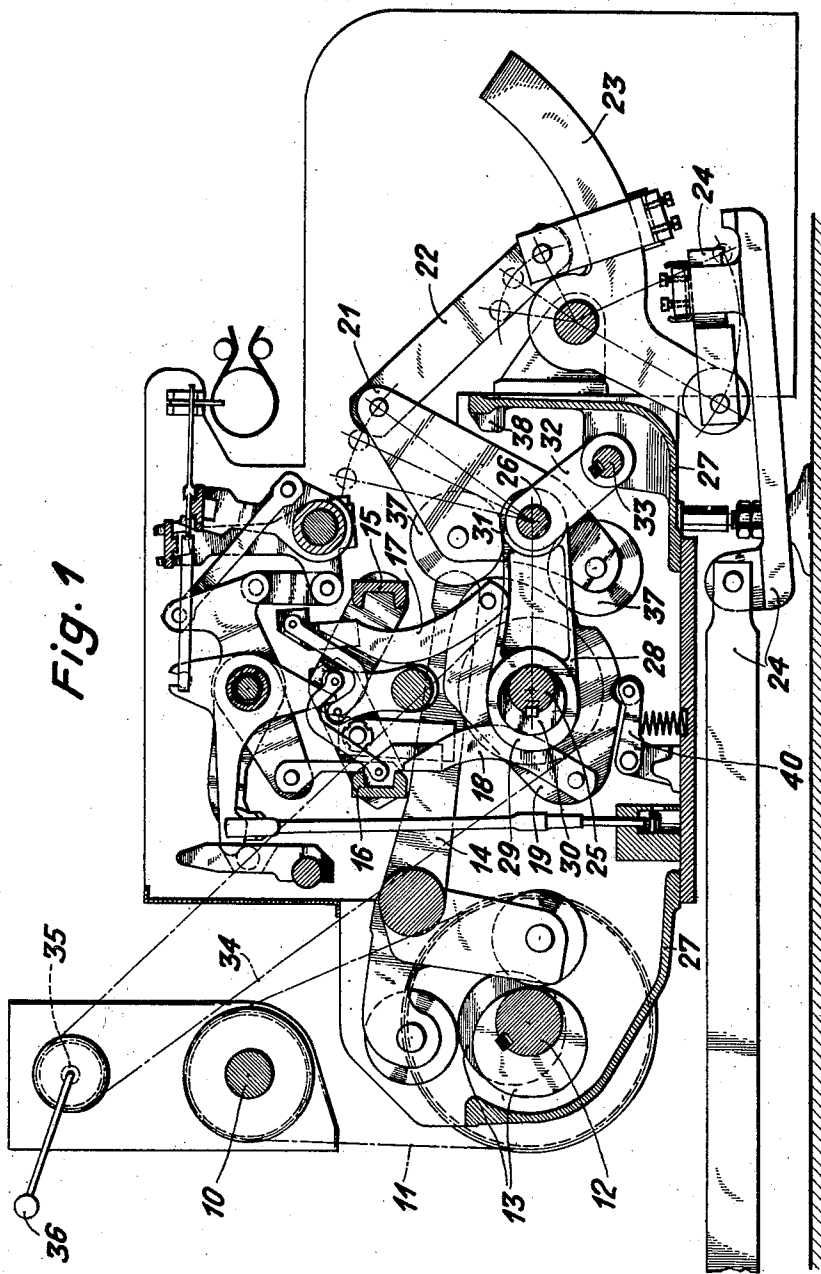
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DOBBY

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2 Sheets-Sheet 1



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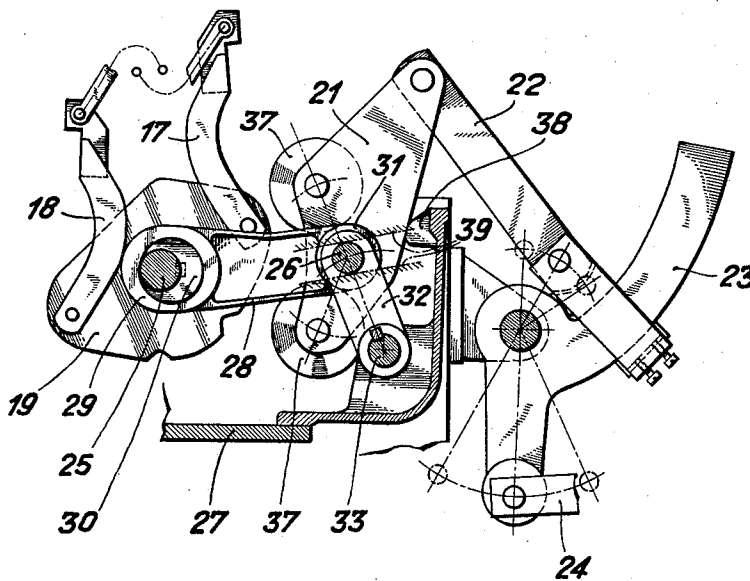
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Fig. 2



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8 Claims. (Cl. 139-75)

The present invention relates to a dobby for selectively actuating the heddle frames in a loom for weaving wherein rocking cams, rockable by lifting blades adapted to selectively engage lifter rails, actuate cam follower levers which are individually connected by suitable linkages to the heddle frames.

An object of the present invention resides in the provision of a dobby of the aforesaid type with a mechanism for placing the heddle frames in closed shed position.

The mechanism according to the invention affords removal of the cam follower levers from the rocking cams and placement of the levers in a position corresponding to the closed shed position of the respective heddle frames. In a preferred embodiment of the invention the rocking cams are freely rockably supported by a rotatable shaft to which preferably two eccentric discs are made fast. The eccentric discs cooperate with eccentric rods whose free ends are connected to a shaft which supports the cam follower levers. The last mentioned shaft is guided to move on a prescribed path upon rotation of the shaft carrying the eccentric discs for removal of the cam follower levers from the rocking cams. Stop means are provided to hold the cam follower levers in a position corresponding to the closed shed position of the heddle frames.

Instead of mounting the eccentric discs on the shaft supporting the rocking cams the eccentric discs may be mounted on the shaft supporting the cam follower levers.

The shaft to which the eccentric discs are connected preferably has an end portion projecting outside of the casing of the dobby and has manually operable means connected thereto for rotating the shaft to move the eccentric discs to the position corresponding to closed shed position of the heddle frames.

The novel features which are considered characteristic of the invention are set forth with particularity in the appended claims. The invention itself, however, and additional objects and advantages thereof will best be understood from the following description of embodiments thereof when read in connection with the accompanying drawing wherein:

FIG. 1 is a diagrammatic longitudinal sectional side view of a card-controlled dobby according to the invention.

FIG. 2 is a portion of FIG. 1, showing the dobby in closed shed position.

Referring more particularly to the drawing, numeral 10 designates a shaft which is driven by the main shaft of the weaving machine and which drives a main shaft 12 of the dobby by means of a chain 11. Cams 13 are made fast on the shaft 12 and are in engagement with follower rollers mounted on a lever 14 for actuating the latter. The lever 14 is operatively connected to lifter rails 15 and 16, for example, in the manner shown in my copending applications Serial Nos. 86,489 and 86,492 and of same date as the present application. Lifting blades 17 and 18 are adapted to be selectively engaged by the lifter rails 15 and 16. A rocking cam 19 is provided for each heddle frame. Two lifting blades 17 and 18 are swingably connected to each rocking cam for rocking the latter. A cam follower lever 21 is adapted to be engaged by the rocking cam 19 for actuation thereby. A link 22 is pivoted to the lever 21 and is adjustably connected to a lever 23. The

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latter is adjustably connected to a linkage 24 which is operatively connected to a heddle frame, not shown.

The rocking cams 19 are rockably supported by a shaft 25. The cam follower lever 21 is rockably supported by a shaft 26. The shaft 25 is supported in a casing 27 of the dobby. Eccentric discs 30 are made fast on the shaft 25 and cooperate with heads 29 of eccentric rods 28. The free ends of the eccentric rods are connected to the shaft 26. The latter is guided, preferably at each end, by an arm 32 which extends from a shaft 33 which is supported in the casing 27.

One end of the shaft 25 projects outside of the casing 27 and is connected by means of a chain 34 to a shaft 35 which can be rotated by manipulating a crank 36. At a full revolution of the shaft 35 the shaft 25 is revolved through 180° whereby the eccentric rods 28 are moved to the right, as seen in FIG. 1, moving the shaft 26 also to the right. Because of the arms 32 the shaft 26 moves at the same time around the shaft 33 into the position shown in FIG. 2. This causes removal of follower rollers 37 mounted on the lever 21 from the cam 19. When the mechanism is in the position shown in FIG. 2 the cam follower lever 21 abuts against an abutment 38 which is connected to the casing 27 and which stops the lever 21 in a position in which the lever 23 is moved through one half of the angle necessary for changing the position of the respective heddle frame from upper shed position to the lower shed position, or conversely. The aforescribed rotation of the shaft 25 through 180° effects, therefore, only movement of a heddle frame half-way from upper shed position to the lower shed position, or the converse movement so that the frame is in closed shed position and the tension of the warp threads is released.

An advantage of the arrangement according to the invention is that the forces exerted by the rocking cams 19 on the shaft 25 and the forces exerted by the follower levers 21 on the shaft 26 are absorbed by the rods 28 and are not transmitted through the casing of the dobby.

The arms 32 may be made in one part with the shaft 33, or may be rigidly connected thereto. The same can be done with the rods 28 and the shaft 26. In this way skew position of the shafts 25 and 26 is avoided and parallelism is assured.

Instead of mounting the arms 32 on a common shaft 33, each arm may be individually swingable on a pin connected to the casing 27.

FIG. 2 shows in dotted lines a rectilinear guide 39 which may be provided at each end of the shaft 26 so that the arms 32 can be omitted. Conventional slides may be provided at the ends of the shaft 26, if desired, which slide between the guide surfaces of the guides 39 when the eccentric disc 30 is rotated from the position shown in FIG. 1 to the position shown in FIG. 2.

The center of the eccentric disc 30 is positioned on a straight line connecting the centers of the shafts 25 and 26 when the eccentric disc is in the position shown in FIG. 1 and when it is in the position shown in FIG. 2 so that rotation of the disc 30 by reaction forces originating at the shaft 26 is impossible. As an additional safeguard, fixing devices of the type designated by numeral 40 for fixing the rocking cam 19 in two different positions may be provided for arresting the eccentric disc 30 in two end positions which are defined by a 180° angular rotation of the eccentric disc 30. In lieu of combining fixing devices with the eccentric disc 30 these devices may be combined with the crank 36. Since this crank makes a complete revolution for rotating the eccentric disc 30 through 180° only one fixing device of the type designated by numeral 40 in FIG. 1 is sufficient for arresting the crank 36 in the position shown in FIG. 1.

Instead of arranging the eccentrics 30 on the shaft 25 they may be made fast on the shaft 26, and the eccentric

rod 28 may be installed in reversed position. For rotating the eccentrics 30 which, in this case, oscillate with the shaft 26 around the shaft 33, a gear may be provided on the shaft 26 whose teeth mesh with the teeth of a gear mounted on the shaft 33 within the casing 27. In this case the shaft 33 would have to project from the casing 27 and a sprocket wheel for the chain 34 would be mounted on the projecting end of the shaft 33.

In lieu of a single abutment 38 two abutments may be provided on the inside of the right side of the casing 27, one abutment being placed higher and one abutment being placed lower than the shaft 26. In the position of the lever 21 shown in FIG. 2 the upper abutment is engaged by the lever and the lower abutment is engaged by one of the rollers 37. If there is a possibility that the weight of the heddle frames swings the levers 21 in counterclockwise direction, an abutment should be placed below the shaft 26.

I claim:

1. In a dobby for actuating the heddle frames of a weaving machine, lifter rails, actuating means connected to said lifter rails for actuating same, lifting blades selectively engageable with said lifter rails, a rocking cam for each heddle frame, a rotatable first shaft rockably supporting said cams, two of said lifting blades being swingably connected to each of said cams for rocking the latter upon engagement of one of the connected lifting blades with one of said lifter rails, a cam follower lever engageable with said rocking cam, a linkage for a heddle frame operatively connected to said cam follower lever, a second shaft rockably supporting said cam follower levers, guide means movably connected to said second shaft for guiding movement thereof normal to the longitudinal axis of the second shaft, at least one eccentric disc fast on one of said shafts, an eccentric rod having one end engaging said eccentric disc and having its second end swingably

connected to the other of said shafts and forming a link between said shafts for accurately maintaining the relative position of said shafts, and means connected to the shaft on which an eccentric disc is fast for rotating said shaft to move said cam follower lever away from said rocking cam and into a position corresponding to the closed shed position of said heddle frames.

2. In a dobby as defined in claim 1 and wherein said eccentric disc is fast on said first shaft.

3. In a dobby as defined in claim 2 and wherein the second end of said eccentric rod is rigidly connected to said second shaft.

4. In a dobby as defined in claim 2 and wherein said guide means is stationary and slidably engages said second shaft for guiding the latter to move on a prescribed path upon rotation of said first shaft.

5. In a dobby as defined in claim 2 and wherein said guide means includes an arm rockable on a stationary fulcrum and having a free end swingably connected to said second shaft.

6. In a dobby as defined in claim 2 and wherein said guide means includes a shaft rockable on its longitudinal axis, a plurality of arms fast on said last mentioned shaft, the free ends of said arms being swingably connected to said second shaft.

7. In a dobby as defined in claim 1 and wherein said eccentric disc is fast on said second shaft.

8. In a dobby as defined claim 1, a stationary abutment adapted to be engaged by said cam follower lever when the latter is in shed closing position.

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