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FLEXIBLE BOBBIN RECEIVER FOR WEFT REPLENISHING LOOMS

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FLEXIBLE BOBBIN RECEIVER FOR WEFT REPLENISHING LOOMS

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This invention relates to improvements in flexible bobbin receivers for weft replenishing looms and it is the general object of the invention to provide means by which such a receiver can be emptied by a quickly operated sliding lock.

In weft replenishing looms the spent or exhausted bobbins are driven downwardly from the lay during weft replenishing operations and must be collected in some form of receiver to prevent them from scattering on the floor. It has been common practice heretofore to provide expensive and unwieldy bobbin cans made of sheet metal which rest on the floor and interfere with cleaning operations and are also of sufficient weight to render laborious the operation of emptying them. It is an important object of my present invention to provide a cloth bag suspended in position to receive the spent bobbins and provided with a form of sliding lock by means of which the bag may be opened temporarily to permit discharge of the bobbins contained therein.

In one form of my invention the receiver comprises a stationary rigid framework from which the bag is suspended and the bag has the front wall thereof provided with a sliding lock so constructed that when moved to unlocking position the lower part of the wall will fall forwardly to serve as a guide to direct bobbins falling from the bag into a receiver in front of the loom. In another form of my invention the sliding lock extends downwardly along the front wall and partly under the bottom of the bag and when moved to unlocked position permits a spreading of adjacent parts of these walls so that the bobbins can fall out of the bottom of the bag while the latter remains attached to its fixed support.

The sliding lock which I employ occasionally sticks and requires a quick motion to start its unlocking motion. It is another object of my invention to arrange the lock so that the sliding lock member will pull against the weight of the bobbins in the bag at the beginning of the unlocking operation.

With these and other objects in view which will appear as the description proceeds, my invention resides in the combination and arrangement of parts hereinafter described and set forth.

In the accompanying drawings, wherein a convenient embodiment of my invention is set forth,

Fig. 1 is a front elevation of part of a weft replenishing loom having the preferred form of my invention applied thereto and showing the sliding lock in locked position to retain bobbins within the receiver,

Fig. 2 is a side elevation looking in the direction of arrow 2, Fig. 1,

Fig. 3 is an enlarged vertical section on line 3-3 of Fig. 1,

Fig. 4 is a diagrammatic view looking in the general direction in which Fig. 2 is viewed but

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showing the bag in the position which it assumes during a bobbin emptying operation,

Fig. 5 is a view similar to Fig. 1 but showing the modified form of the invention with the lock in locked position so that the bag retains bobbins therein,

Fig. 6 is a side view looking in the direction of arrow 6, Fig. 5,

Fig. 7 is an enlarged horizontal section on line 7-7, Fig. 5, and

Fig. 8 is a diagrammatic front elevation showing the procedure followed in emptying the modified form of bag of bobbins when the sliding lock is moved up to unlocking position.

Referring particularly to Figs. 1 and 2, I have shown a loom frame 10 and lay 11 provided with a shuttle box 12 containing a shuttle S. A bobbin chute 13 extends downwardly from the lay and traverses a given path below the box as the lay reciprocates backwardly and forwardly. During replenishing operations spent bobbins B are discharged from the shuttle and are guided downwardly and forwardly along the chute 13 when the lay is in forward position, or to the left as viewed in Fig. 2.

The bobbin receiver R comprises a metal frame F and a cloth bag C. The frame F may be made of a rod bent to the form indicated in the drawings and has a horizontal support section 15 extending laterally to the left of the receiver as viewed in Fig. 1 and held in fixed position by a stand or support 16 secured to the loom frame 10. The frame F has a bobbin receiving mouth M formed of right and left side bars 17 and 18, respectively, and front and back bars 19 and 20, respectively. The front bar 19 may in effect be a continuation of the laterally extending support member 15, and the frame is so held that the rear bar 20 will be at a level below the front bar 19 so that the mouth will be inclined downwardly but will face in a general upward direction to receive bobbins descending along the chute 13.

The cloth bag C has right and left walls 25 and 26, respectively, depending from the side bars of the frame, and front and back walls 27 and 28, respectively, hanging from the other frame bars. The upper ends of these walls are provided with a suitable hem 29 which fits around the bars of the frame F.

In the preferred form of the invention the lower part of the front wall 27 is provided with a cut or slit 30 which separates the front wall into two parts, a lower flap 31 and an upper part 32. A sliding lock designated as L comprises a series of lock bars 33 on flap 31 and a second series of lock bars 34 on part 32. A sliding member 35 provides means by which the two series of bars can be locked and unlocked. This form of lock is that familiarly known in the trade as "zipper" and is commercially available in sizes proper for

the use which I make of it on the cloth bag. The slit 30 is so cut that flap 31 is convex upwardly, and a U-shaped reinforcing bar 36 made preferably of wire is sewed to the flap 31 and extends close to the inner set of locking bars 33. The lower ends of this U-shaped reinforcement terminate somewhat above the lower ends of the series of lock bars. As shown in Fig. 3 a guard flap 37 is sewed to the inside of the upper part 32 of the front wall 27 and overhangs the sliding lock means to protect the latter from any threads which may be attached to the bobbins in the bag.

In the operation of the preferred form of the invention the lock L will normally be in locked position so that the flap 31 and the upper part 32 of the wall will be connected or locked together and the front wall will be closed. Replenishing operations of the loom will result in discharge of bobbins into the closed bag, and after these bobbins have accumulated to an amount requiring emptying of the bag, a movable receiver such as a box B' will be moved in front of the bag, after which the lock member 35 will be slid upwardly from its normal left hand position and then along the bars 33 and 34 and downwardly to its right hand position, thus unlocking the flap. The flap is then swung downwardly to extend over the rear wall of the box B', the reinforcing rod 36 holding the flap in position and the bobbins within the bag C sliding down over the flap into the box. When the bag is empty the flap will be restored to its normal position and the lock member 35 will be slid back to the left to its normal position, thereby again locking the flap 31 to the upper part of wall 27.

In the modified form of the invention the frame F and the bag C' will be substantially as already described except the form of sliding lock means used. The sliding lock 40 comprises locking bars arranged in series 41 and 42 sewed to the right and left hand parts 43 and 44, respectively, of the front wall 45. This lock extends from a point below the top of the front wall to the bottom of said wall and then preferably though not necessarily a short distance under the bottom 46 of the bag. A sliding member 47 will ordinarily be at the bottom of the slide lock means 40 and the series of locking bars will be interconnected so that the sides 43 and 44 will be locked together and the bag will be able to hold bobbins which are discharged into it. Guard flap 48 is similar to flap 37.

When it is desired to empty the bag the slide member 47 will be moved upwardly against the weight of the bobbins in the bag, after which the sides or wall parts 43 and 44 can be spread apart, see Fig. 8, to permit the bobbins contained in the bag C' to be discharged into a box similar to that described in the preferred form of the invention. The slide 47 is then returned to its low position by a pull which is resisted by bar 19 of mouth M.

From the foregoing it will be seen that I have provided a simple form of flexible bobbin receiver wherein a cloth bag is provided with a sliding lock by means of which part of it can be opened for the purpose of emptying bobbins in the bottom of the bag. In the preferred form of the invention the sliding lock is of curved form and permits the rounded flap reinforced by rod 36 to be moved forwardly and serve as a guide for bobbins as they move from the bag into box B'. In the modified form of the invention the sliding lock extends downwardly along a part of the front wall 45 and preferably under part of the bottom 46 and when the member 47 slides up to unlock-

ing position the sides of the front wall can be spread apart to permit discharge of the bobbins. While I have described particular directions in which the members 35 and 47 should be moved to unlock their corresponding sliding locks, I do not wish necessarily to be limited to these directions inasmuch as it is apparent that lock 35 could be moved to the left for the unlocking operation and the lock 47 could be moved in the direction opposite to that described for its unlocking motion. In both forms of the invention it will be noted that the sliding lock members move initially upwardly on their unlocking stroke while the bag is full of bobbins and the weight of the bobbins facilitates the unlocking operation.

Having thus described my invention it will be seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and I do not wish to be limited to the details herein disclosed, but what I claim is:

1. In a bobbin receiver for bobbins ejected from a weft replenishing loom, a stand secured to the loom, a rigid frame formed with a bobbin receiving mouth, a support extending laterally from the frame and secured to said stand to hold said frame at one side of the loom, a cloth bag suspended from the frame to receive bobbins entering the mouth, said bag having a slit in the lower forward part thereof for the discharge of bobbins, and a slide lock arranged along said slit normally closing said slit to enable the bag to retain bobbins but slidable to unlocked position to permit opening of the slit for the forward discharge of bobbins.

2. In a bobbin receiver for bobbins ejected from a weft replenishing loom, a stand secured to the loom, a rigid frame formed with a bobbin receiving mouth, a support extending laterally from the frame and secured to said stand to hold said frame at one side of the loom, a cloth bag suspended from the frame to receive bobbins entering the mouth, said bag having a front wall separated into two adjacent parts, and a slide locking means located on said parts and including a member which when moving to the normal position thereof causes said means to lock said parts together to enable the bag to retain bobbins, said member when moving away from the normal position thereof causing said means to unlock said parts to permit forward discharge of bobbins between said parts.

3. In a bobbin receiver for bobbins ejected from a weft replenishing loom having a lay, a stand secured to the loom, a rigid frame forward of the lay and formed with a bobbin receiving mouth, a cloth bag suspended from the frame forward of the lay and at one side of the loom to receive bobbins entering the mouth, said bag having a front wall separated into two adjacent parts, and a slide locking means comprising a row of locking bars on each of said parts and a locking member slidable along said bars in one direction to lock said parts together and slidable along said bars in the opposite direction to unlock said parts and permit separation of said parts for the forward discharge of bobbins from the bag.

4. A bobbin receiver for a weft replenishing loom having a metallic frame at the top thereof formed with a support extending laterally therefrom, a cloth bag suspended from the frame and having a front wall separated into two parts having adjacent edges, and sliding lock means extending along said edges and effective in one condition to lock said edges together and effective in

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another condition to unlock said parts for the forward discharge of bobbins from said bag in a direction between said edges.

5. A cloth bobbin receiver for a weft replenishing loom having means for being suspended in bobbin receiving position and having a front wall separated into two parts having adjacent edges, the edge of one of said parts being upwardly convex, arcuate reinforcing means on said one part adjacent to the upwardly convex edge thereof, and sliding lock means extending along said edges and effective in one condition to lock said edges together and effective in another condition to unlock said edges to permit said one part and said reinforcement therefor to fall away from the other edge to define an opening through which bobbins in the bag may be discharged.

6. A cloth bobbin receiver for a weft replenishing loom having means for being suspended in bobbin receiving position and having a front wall separated into two parts having adjacent edges, the edge of one of said parts being upwardly convex, reinforcing means secured to said part and extending along the edge of said one part, and sliding lock means extending along said edges and capable of locking and unlocking said edges, said

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one part when said edges are unlocked falling away from the other part and being held taut by said reinforcing means to assist in discharge of bobbins from the bag when said one part is inclined downwardly and away from the bag.

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