Aug. 14, 1951 F. G. LAKE 2,564,335

PICKING CAM MOUNTING

Filed March 11, 1949

Fig. 2

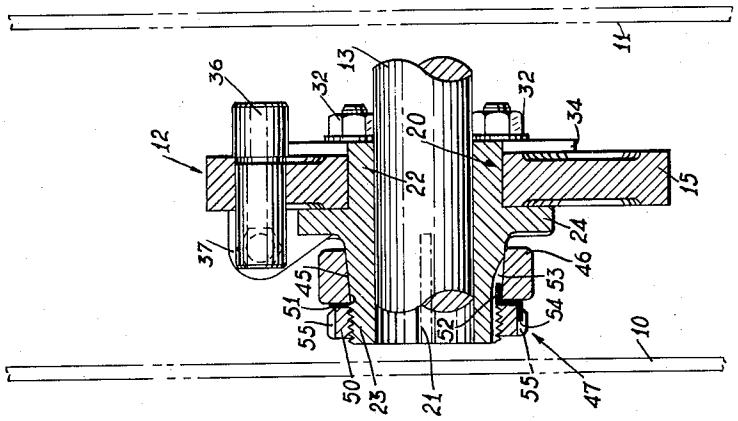


Fig. 3

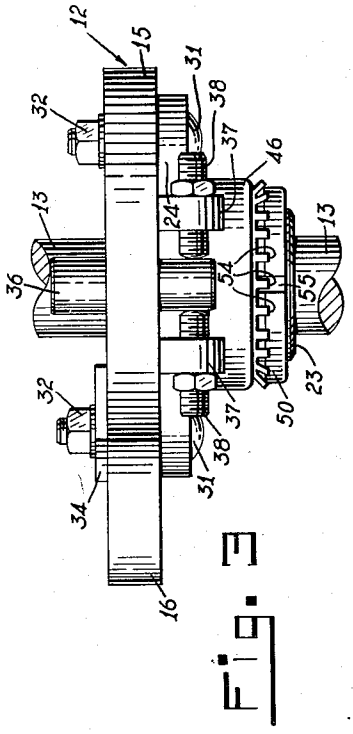
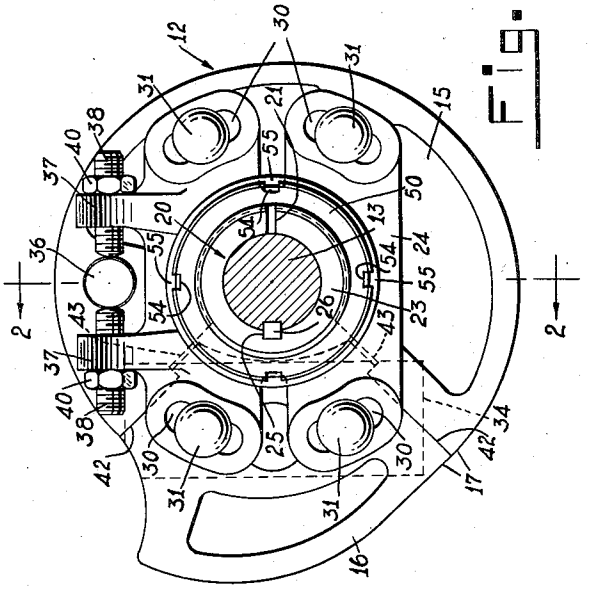


Fig. 1



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PICKING CAM MOUNTING

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3 Claims. (Cl. 139—147)

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The present invention relates to loom cams and more particularly to the construction and mounting of the picking cams.

In prior art constructions, the picking cam hub is affixed to the picking cam shaft by set screws alone. The use of keys in conjunction with set screws for securing the picking cam hub to the shaft is generally avoided as undesirable, because slippage of the set screws causes the keys to wear the shaft quickly and thereby makes it necessary to replace said shaft frequently.

One object of the present invention is to provide a new and improved picking cam hub constructed to permit easy replacement of the wearable parts thereof and to permit easy rotative adjustment of the picking cam with respect to the picking cam hub and the picking cam shaft.

Another object of the present invention is to provide a new and improved picking cam mounting, which allows for the keying of the picking cam hub to the picking cam shaft without the usual rapid wear of said shaft in use.

Various other objects of the invention will be apparent from the following particular description and from an inspection of the accompanying drawings, in which:

Fig. 1 shows, partly in section and partly in face view, a left-hand picking cam and picking cam hub assembly embodying the present invention;

Fig. 2 is a section of the arrangement shown in Fig. 1, but taken on line 2—2 thereof; and

Fig. 3 is a top plan view of the arrangement shown in Fig. 1.

Referring to the drawings, the loom, aside from the picking mechanism to be described, may be of the general conventional type or may be of the improved type shown in copending application Serial No. 691,237, filed August 17, 1946, now Patent No. 2,533,128. In this improved type of loom, instead of the conventional loomside with a single frame web, each loomside comprises a pair of parallel webs 10 and 11, as shown, supporting different parts of the picking mechanism to be described.

In the drawings, the left-hand picking cam set-up is shown. However, it must be understood that the picking mechanism on the right-hand loomside is similar in construction.

The picking cam set-up comprises a picking cam 12 secured to a cam shaft 13 which is supported in bearings (not shown) mounted on the frame webs 10 and 11 respectively on one loomside and which is similarly supported near its other end in the other loomside. The cam shaft

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13 may constitute the main cam shaft as in the case of a conventional loom or may be a separate picking cam shaft.

The picking cam 12 comprises a main segmental cam disc section 15 and a segmental cam disc toe or nose section 16 detachably joined together along generally radial planes, as will be more fully described, to define conjointly a continuous cam surface 17. The picking cam 12 is supported on a hub 20 which is provided with a longitudinal split 21 on one side and which has an inner sleeve section 22 extending with a snug fit into the center hole of said cam, an outer sleeve section 23 beyond said cam and a flange 24 between said sleeve sections engaging the outer face of the cam disc sections 15 and 16. The hub 20 has a keyway 25 for keying engagement with the cam shaft 13 through a key 26.

For adjustably securing the cam disc members 15 and 16 to the hub 20, the flange 24 of said hub has a series of elongated arcuate slots 30 concentric with the axis of said hub and receiving machine bolts 31. The bolts 31 pass through the cam disc sections 15 and 16 and are locked by means of nuts 32 threaded on said bolts and bearing against the outer faces of the cam disc sections through washers or through a backing plate 34 to be described. The bolts 31 are desirably arranged, so that two of these pass through the main cam disc section 15 and two pass through the cam disc toe section 16.

For adjustably turning the cam 12 with respect to the hub 20, there is affixed to said cam a headed stud pin 36 press-fitted into the main section 15 of said cam and extending substantially parallel to the axis of said hub. The hub flange 24 has a pair of lugs 37 flanking the stud pin 36 and carrying respective studs 38 threaded therein. These studs 38 impinge at their inner ends against opposite sides of the pin 36 and are of the socket head type to receive a turning tool. Nuts 40 threaded on the studs 38 and bearing against the outer faces of the lugs 37 lock said studs in adjusted position. After the locking nuts 40 have been loosened, and while the bolts 31 are released, the studs 38 may be turned to effect fine adjustment of the rotary position of the cam 12 with respect to the shaft 13, so that the timing of the picking motion in relation to the speed of the loom and the width of the fabric woven may be selectively adjusted.

The toe or nose cam section 16 wears faster than the other parts of the picking cam and, therefore, has to be replaced from time to time. Consequently, the nose cam section is made a

separable part. To that end, the main cam section 15 has on each side offset radial edges 42 and 43 defining a keying configuration and the nose cam section 16 has corresponding offset radial side edges for interlocking engagement therewith against relative radial displacement. The two cam sections 15 and 16 are of equal width, so that they will lie flush in the same plane and are held against relative axial displacement by the backing plate 34 extending across the radial jointures formed between the two cam sections and by the two bolts 31 passing therethrough.

By reversing the stud pin 36, the picking cam 12 may be used for the right-hand side of the loom.

For clamping the hub 20 to the cam shaft 13, the split outer sleeve section 23 of said hub is tapered at its outer periphery 45 and is embraced by a correspondingly tapered clamping collar 46. A lock-nut and washer device 47 serves to press the clamping collar 46 inwardly towards the cam 12 and at the same time retains said collar in position. In the form shown, the locking device 47 comprises a lock-nut 50 threaded on the outer end of the outer hub sleeve section 23 and a metal washer 51 between said nut and the clamping collar 46. The washer 51 has a tab 52 projecting from its inner periphery into a recess 53 in the hub sleeve section 23, to hold said washer against rotation with respect to said hub sleeve section while the lock-nut 50 is being tightened. The washer 51 also has a series of locking fingers 54 at its outer periphery and the lock-nut 50 has on its outer periphery a plurality of notches 55, four being shown quadrantly arranged. When the lock-nut 50 has been turned to the proper extent to afford the desired holding pressure between the hub 20 and the cam shaft 13 and to align the washer fingers 54 with respective lock-nut notches 55, these fingers are bent into the respective registering notches to secure said lock-nut in position.

The cam arrangement described permits the use of a key connection between the picking cam 12 and the cam shaft 13 and clamps the hub 20 of said cam tightly around said shaft. This prevents axial or rotational slippage of the hub 20 on the cam shaft 13 and thereby reduces to a minimum the stresses resulting from the key connection.

While the invention has been described with particular reference to a specific embodiment, it is to be understood that it is not to be limited thereto but is to be construed broadly and restricted solely by the scope of the appended claims.

What is claimed is:

1. In a picking mechanism for a loom, a picking cam disc member having an axial aperture, a hub for said cam member adapted to embrace the picking cam shaft and slotted for keyed engagement with said shaft, said hub having a sleeve section extending into said aperture, an externally tapered longitudinally split sleeve section extending axially outwardly beyond said cam member, and a flange member between said sleeve sections extending radially outwardly from said sleeve sections and in engagement with a face of said cam member, one of said members having one or more elongated slots concentric with the axis thereof, screws passing through respective slots to secure adjustably said cam member to said hub, an internally tapered collar embracing the tapered sleeve section and adapted to clamp said latter sleeve section to said shaft as said collar is moved axially, a nut threaded on said tapered sleeve section and engaging said collar for moving said collar axially towards clamping position, and for holding said hub in clamped position, and means for locking said nut in position.

2. In a picking mechanism, a picking cam, a hub for said cam, adjustable means connecting said hub and said cam for rotation in unison, while permitting adjustment in the rotative position of said cam with respect to said hub, and means for adjustably rotating said cam relative to said hub and including a pin on said cam spaced from the axis thereof and extending substantially parallel to said axis, a pair of lugs rigid with said hub and flanking said pin, and adjusting screws threaded into said lugs respectively and adapted to impinge on said pin for adjusting operation.

3. In a picking mechanism, a picking cam member, a hub for said cam member having a flange member in engagement with a face of said cam member, one of said members having one or more elongated slots concentric with the axis thereof, screws passing through respective slots to secure adjustably said cam member to said hub for rotation in unison, while permitting adjustment in the rotative position of said cam member with respect to said hub, and means for adjustably rotating said cam member relative to said hub and including a pin on one of said members spaced from the axis thereof and extending substantially parallel to said axis, a pair of lugs rigid with the other of said latter members and flanking said pin, and adjusting screws threaded into said lugs respectively and adapted to impinge on said pin for adjusting operation.

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