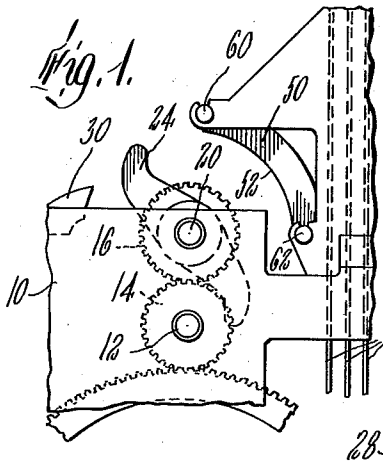
Aug. 5, 1941. C. F. LIBBY 2,251,337

REED FOR LOOMS

Original Filed Feb. 26, 1937

Fig. 1.



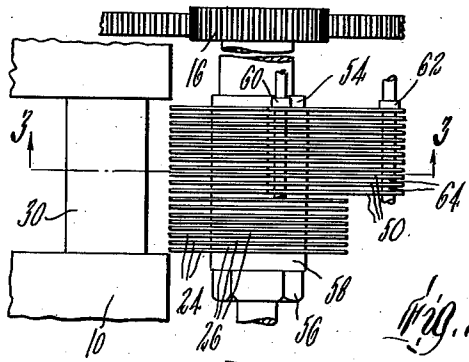


Fig. 2.

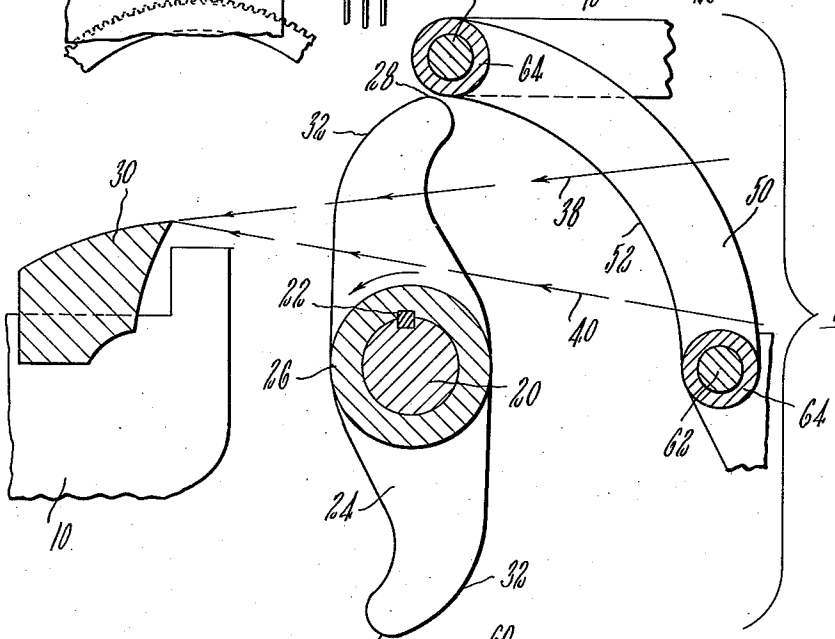


Fig. 3.

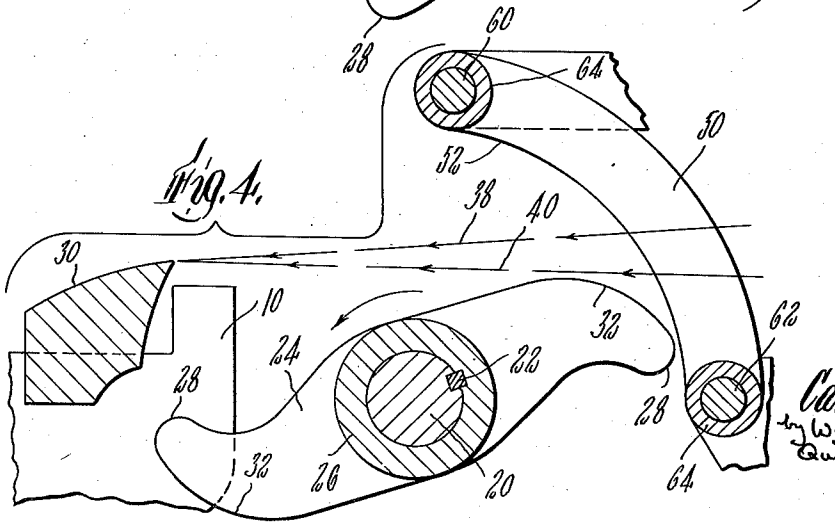


Fig. 4.

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Patented Aug. 5, 1941

2,251,337

UNITED STATES PATENT OFFICE

2,251,337

REED FOR LOOMS

Carl F. Libby, Stoughton, Mass.

Original application February 26, 1937, Serial No. 127,884. Divided and this application July 31, 1939, Serial No. 287,441

5 Claims. (Cl. 139—191)

This invention relates to an improved reed for looms, particularly for narrow web looms such as that described in my co-pending application Serial No. 127,884, filed February 26, 1937, and issued Nov. 21, 1939 as Patent No. 2,180,831, of which the present application is a division.

According to the present invention, the reed comprises a series of revolving dents mounted on a rotatable shaft, the tips of the revolving dents describing circular paths. These dents preferably consist of thin plates mounted on the shaft in parallel planes which are perpendicular to the axis of the shaft. Cooperating with the revolving dents are stationary or fixed dents which are mounted in the same planes as the corresponding revolving dents and which are made with concave arcuate edges concentric with the axis of the shaft and closely adjacent to the paths of the tips of the corresponding revolving dents.

For a more complete understanding of the invention, reference may be had to the following description of an embodiment thereof and to the drawing of which

Figure 1 is a fragmentary side elevation of a loom in which the invention is embodied.

Figure 2 is a fragmentary plan view of the same.

Figure 3 is a section on the line 3—3 of Figure 2, on a larger scale.

Figure 4 is similar to Figure 3 except that the revolving dents are shown in a different position of operation.

Figure 1 illustrates a portion of the frame 10 of a narrow web loom such as illustrated in my said copending application Serial No. 127,884. Mounted on the frame is a drive shaft 12 adapted to be driven by any suitable means such as a pulley wheel and belt connection (not shown). This shaft is connected by means of meshing gears 14 and 16 with a rotatable shaft 20 journaled in the frame 10. Mounted on the shaft 20 and keyed thereto as by a suitable key 22 or other equivalent means, is a series of thin plates 24, these plates being spaced by washers 26, preferably of uniform thickness. The plates are mounted on the shaft 20 at their mid-points so that the tips 28 of each plate are equally distant from the axis of the shaft and describe identical circles about the axis as the plates revolve with the shaft. The series of plates thus constitutes two series of dents which are angularly spaced 180° apart about the axis of the shaft. Also mounted on the frame 10 of the loom is a breast beam 30 toward which the tips of the plates move after passing their uppermost position as illustrated in Figure 3. Each series of dents has an edge portion 32 which is curved eccentrically with respect to the axis of the shaft, so that as the revolving dents swing toward the breast beam 30, the edges 32 approach the breast beam progressively and thus beat up the weft yarn which has just been inserted in the shed. The curvature of each edge portion 32 is such that when the shaft 20 revolves at a constant angular velocity as it does in ordinary use, in the portion of each revolution during which the reed moves from an upright position such as is shown in Figure 3 to a position wherein the tip of the reed is closest to the breast beam 30, the point of contact between the edge 32 and the filling yarn approaches the breast beam at a substantially uniform speed. Thus, when the newly laid filling is engaged by the advancing edges 32, it is moved at a substantially uniform speed to the fell of the fabric in the beating-up operation. The breast beam 30 is preferably located with reference to the axis of the shaft 20 so that the tips 28 of the revolving reeds pass very close thereto.

The loom is provided with the usual set of heddles 36 by which a shed is formed as indicated by lines 38 and 40 in Figure 3, the top of the shed being indicated at 38 and the bottom at 40. The warp threads composing the shed pass between stationary dents 50 which are secured to the loom frame and which are disposed in the same planes as the corresponding revolving dents 24. Thus the spacing between successive dents 50 is equal to the spacing between successive dents 24. The dents 50 each have a concave arcuate edge 52 which extends from below the bottom 40 of the shed to above the top 38 thereof, as indicated in Figure 3. Thus each warp thread is freely movable up and down between a pair of successive stationary dents 50. The arcuate edges 52 are concentric with the axis of the shaft 20 and are disposed in juxtaposition to the paths described by the tips 28 of the revolving dents. Thus when the tips of one set of dents are moving along the corresponding edges 52, as indicated in Figure 4, these tips clear the respective edges 52 by only a few thousandths of an inch. Since the warp threads are guided and held apart from each other by the stationary dents 50, it is evident that the revolving dents must enter the shed between the proper pairs of warp threads and there can be no tangling of the warp threads and revolving dents. This permits successful operation of the loom at high speeds.

As indicated in Figure 2, the revolving dents 24 and the spacers 26 may be assembled in alterna-

tion on the mid-point of the shaft **20**, the shaft being provided with a collar or flange **54** against which the dent **24** at one end of the series abuts. A suitable nut **56** and washer **58** may be mounted on the shaft to engage the other end of the series and to clamp the series of revolving dents and washers firmly together so that they will be tightly held in proper spaced relation. The plates **50** may be mounted on a pair of stationary rods **60** and **62**, suitable spacers **64** being employed between successive plates **50** to space them apart at intervals accurately equal to the intervals between successive revolving plates **24**. The plates **50** are preferably but not necessarily of the same thickness as the plates **24**, but it is essential that the combined thickness of a plate **50** and a spacer **64** be equal to the combined thickness of a plate **24** and a spacer **26**.

It is evident that various modifications and changes may be made in the particular embodiment of the invention herein shown and described without departing from the spirit or scope thereof as defined in the following claims.

I claim:

1. In a loom, a reed comprising a rotatable shaft, a series of revolving dents mounted on said shaft and projecting radially therefrom, and a series of stationary dents mounted in the same planes with respective revolving dents, each said stationary dent having a concave arcuate edge concentric with the axis of said shaft and closely adjacent to a portion of the path described by the tip of the corresponding revolving dent.

2. In a loom, a reed comprising a rotatable shaft, a series of revolving dents mounted on said shaft, each said dent consisting of a thin plate arranged in a plane perpendicular to the axis of the shaft, and a corresponding series of stationary dents mounted in juxtaposition to the paths described by the tips of the revolving dents, each said stationary dent consisting of a thin plate mounted in the same plane as its corresponding revolving dent and having a concave arcuate edge concentric with the axis of said shaft.

3. In a loom having shed-forming means, a reed comprising a horizontal rotatable shaft, a series of revolving dents consisting of thin plates mounted on said shaft in planes perpendicular to the axis of the shaft, and a series of stationary dents mounted in the same planes with corresponding revolving dents and in juxtaposition to the paths described by the tips thereof, each said stationary dent consisting of a thin plate having an arcuate edge concentric with the axis of said shaft and extending from below the bottom of the shed to above the top of the shed.

4. In a loom, a reed comprising a rotatable shaft, a series of revolving dents consisting of elongated thin strips mounted at their mid-points on said shaft to revolve therewith, said plates being arranged in parallel planes perpendicular to the axis of the shaft, and a series of corresponding stationary dents consisting of thin plates mounted in the same planes as the respective revolving dents and having concave arcuate edges concentric with said axis and in juxtaposition to the path described by the tips of the corresponding revolving dents.

5. In a loom, a frame, a shaft journaled in said frame to rotate about a fixed axis, means for rotating said shaft at a substantially constant rate, a series of reed dents mounted on said shaft and projecting radially therefrom in opposite directions, said dents consisting of thin plates arranged in planes perpendicular to the axis of the shaft, the leading edges of said dents being convexly curved in such a manner that the filling beaten up by engagement with said convexly curved edges is moved at a substantially uniform speed to the fell of the fabric.

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