(No Model.)

J. A. & C. CLARK.

LOOM REED.

No. 570,381. Patented Oct. 27, 1896.

Fig. 1.

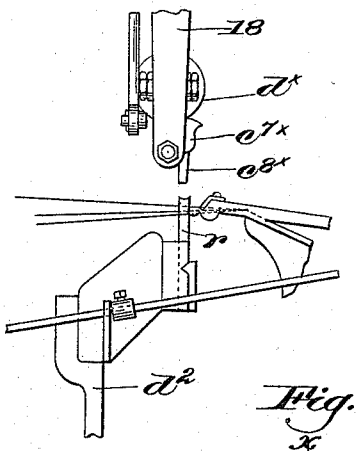


Fig. 3.

Fig. 4.

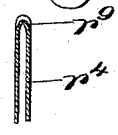


Fig. 2.

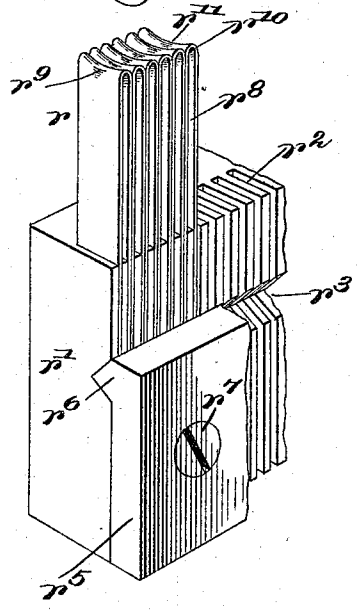
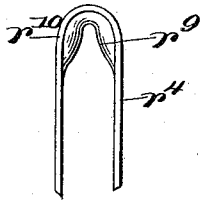


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN A. CLARK AND CHARLES CLARK, OF WORCESTER, MASSACHUSETTS, ASSIGNORS TO THE CROMPTON LOOM WORKS, OF SAME PLACE.

LOOM-REED.

SPECIFICATION forming part of Letters Patent No. 570,381, dated October 27, 1896.

Application filed January 6, 1896. Serial No. 574,415. (No model.)

To all whom it may concern:

Be it known that we, JOHN A. CLARK and CHARLES CLARK, of Worcester, county of Worcester, State of Massachusetts, have invented an Improvement in Loom-Reeds, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention in looms has especial reference to loom-reeds, the object of the invention, broadly stated, being to provide the reed with reed-spaces having at or near their upper ends entrances made flaring to better receive enlargements or knots on the warp-threads traveling therethrough and to prevent said enlargements or knots catching at the entrances to said spaces.

Our invention is particularly useful in connection with reeds wherein the reed-spaces are contracted at or near their upper ends for the purpose of centering or uniformly spacing the warp-threads as the reed moves into its rearmost position, this desirability of spacing or centering being especially apparent in looms for weaving tufted fabrics, wherein the tuft-yarns must be regularly inserted between the warp-threads.

Our invention further comprehends the depressing of the top of the reed-space back of the entrance thereto, which with the above will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, Figure 1 in side elevation represents a sufficient portion of a tufted loom provided with a reed embodying our invention to enable the latter to be understood. Fig. 2 in perspective shows a part of a reed embodying our invention, and such as shown in Fig. 1. Fig. 3 in side elevation shows one of the reed-dents detached; Fig. 4, a detail on the dotted line $x\,x$, Fig. 3, showing one of the reeds and reed-spaces in vertical cross-section; Fig. 5, an enlarged detail of the top of the upper end of the reed member in elevation.

To illustrate our invention we have herein elected to describe the same in connection with a loom substantially such as shown in United States Letters Patent No. 490,237, dated January 17, 1893, although it should be particularly understood that our invention is not to be limited in its application or use to this or to any other particular type or construction of loom.

Referring to the drawings, the arms 18, the tuft-yarn beam or spool $d^{\times}$, the tuft-yarn tubes or quills $c^{8\times}$, and means for operating the same to insert tuft-yarns between the warp-threads and the lay d^2 are and may be of usual or desired construction, such, for instance, as shown and described in said Patent No. 490,237, like letters representing like parts, the latter being arranged to operate as fully set forth in said patent, further description herein being deemed unnecessary.

Referring now to Fig. 2, in the embodiment of our invention herein shown, r' is a bar mounted upon the lay d^2 and shown as provided at its front side with a series of closely-arranged vertical slots r^2, intersecting which is a longitudinal (preferably **V**-shaped) groove r^3, to be referred to. The reed r, as herein shown, is made up of a series of independently-removable (preferably **U**-shaped) members r^4, shown as formed from flat metal strips and arranged with their legs in the slots r^2 referred to, each slot preferably receiving adjacent legs of two of said **U**-shaped members, as best shown in Fig. 2. The legs of these **U**-shaped members r^4 are notched at their front edges to correspond and register with the **V**-shaped groove r^3, the said members, as shown, being retained in proper position by a clamping member r^5, applied to the face of the bar r' and having a **Λ**-shaped longitudinal lip or flange r^6, which enters the groove r^3 referred to and the corresponding notches in the legs of the **U**-shaped members and is secured in position in suitable manner, as by screws r^7. By this construction removal of the plate r^5 permits any single reed member to be removed without disturbing the position of any other member, each pair of vertical legs in any single slot r^2 constituting a reed-dent and each space r^8 formed by and within a **U**-shaped reed member constituting a reed-space.

The reed-spaces r^8 are of a normal width sufficient to permit two or more warp-threads

passing therethrough to be freely crossed in shedding. At one of their ends—herein their upper ends—we have shown the said reed-spaces at their middle contracted at r^9 in suitable manner, as by pinching together the legs of the members adjacent the crown-bends thereof to a width preferably such as will receive but a single thread each, so that when the threads are opened in shedding, those threads moved into the upper plane of the shed will be carried into these contracted portions of the reed-spaces and will therefore be properly centered and spaced one from another and restrained against lateral vibration or play. In accordance with our present invention, however, the entrances to the reed-spaces and preferably the entrances to the upper portions of said spaces at opposite sides of the reed are made larger than the smaller portions back of said entrances, that is, said entrances are made, as it were, flaring, as best indicated at r^{10}, to enable burs or knots on the warp-threads to more freely enter the reed-spaces. Thus, were it not for the flaring entrances, the contracted upper portions of the reed-spaces would frequently bar the entrance thereto of any considerable enlargement on a warp-thread, whereas by our invention the flaring entrances admit of the entrance to the reed-spaces of any burs or enlargements, which latter are worked or carried through the more contracted portions of the reed-spaces without breaking the threads or interrupting the passage of the same through the reed.

We also preferably depress the tops of the reed-spaces, as shown at r^{11}, preferably at their middle, to not only provide a better and more suitable enlargement at the entrances thereof, but also to present at least a part of the tops of said reed-spaces in such positions as will more nearly conform to the angular position of the warp-threads relatively to the reed when the latter is in its extreme angular position.

Our invention is not limited to the particular construction herein shown, for it is evident that the same may be varied without departing from the spirit and scope of our invention.

Having described our invention, what we claim is—

1. The herein-described loom-reed, containing reed-dents provided at or near their upper ends and back of the face of the reed with converging portions, to thereby contract the reed-spaces back of the face of the reed, to present relatively-flaring entrances to the contracted portions of the reed-spaces, substantially as described.

2. The described loom-reed composed of reed-dents, provided at or near their upper ends with central converging portions serving to contract the middle upper portions of the reed-spaces leaving opposite relatively-flaring entrances to the contracted portions of said reed-spaces, substantially as described.

3. The described loom-reed composed of reed-dents formed to present for a greater part of their length reed-spaces of substantially the same width from one to the opposite side of the reed, said reed-dents being constructed at or near their upper ends to present relatively-flaring entrances to the adjacent portions of the intervening reed-spaces, substantially as described.

4. The described loom-reed composed of a plurality of ∩-shaped members and a support to which they are secured, said ∩-shaped members being contracted at or near their crown ends and back of the face of the reed to present reed-spaces having contracted top portions with relatively-flaring entrances to said contracted top portions, substantially as described.

5. The described loom-reed composed of a plurality of ∩-shaped members and a support to which they are secured, said ∩-shaped members being contracted at their crown ends and intermediate the front and back faces of the reed, to thereby present reed-spaces having contracted upper portions with opposite relatively-flaring entrances to said contracted upper portions, substantially as described.

6. The described loom-reed containing ∩-shaped members and a support to which they are secured, the said ∩-shaped members being contracted at or near their crown ends and back of the face of the reed, to thereby form reed-spaces having contracted upper portions with flaring entrances to said contracted upper portions, said reed-dents being also depressed at their crown ends and back of the reed-face, whereby said entrances are made vertically as well as laterally flaring, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN A. CLARK.
CHARLES CLARK.

Witnesses:
JAMES F. WALKER,
GRACE E. HIBBERT.