A. T. QUANTZ.

LOOM.

APPLICATION FILED MAY 31, 1916.

1,253,992.

Patented Jan. 15, 1918.

FIG. 1.

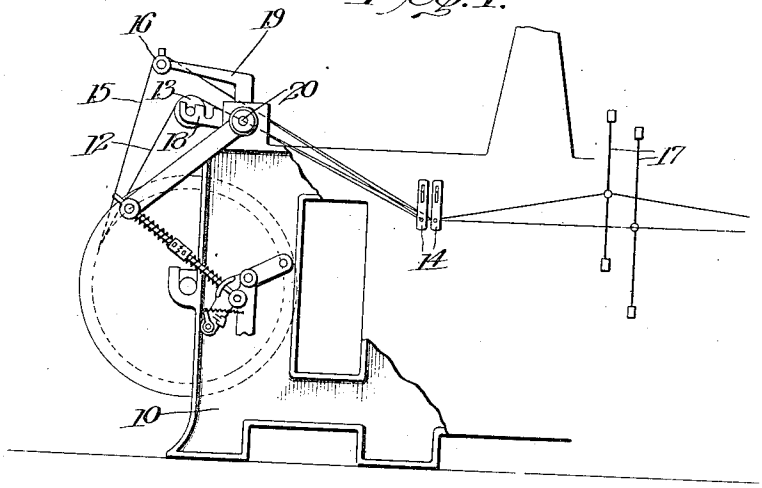
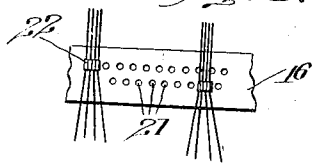


FIG. 3.



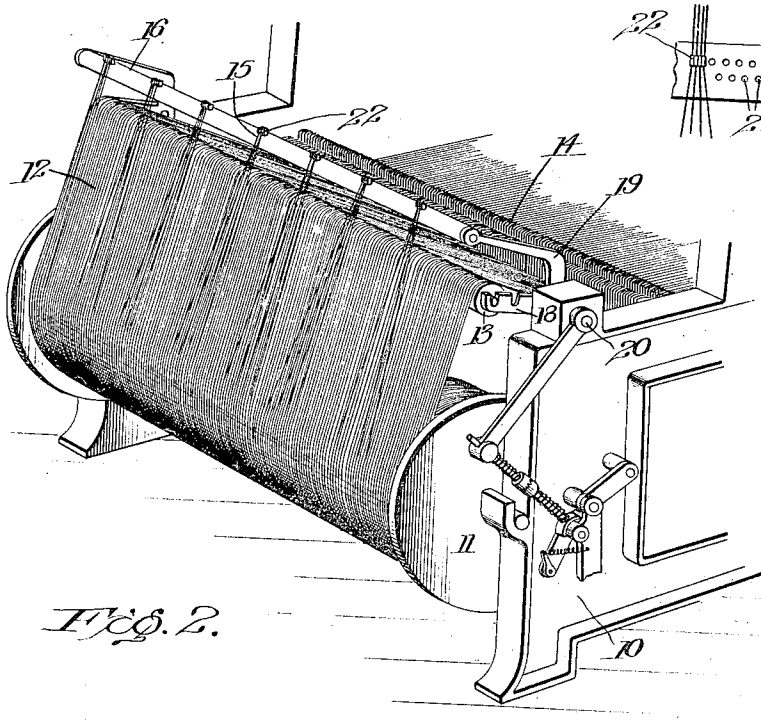


FIG. 2.

FIG. 4.



Witnesses

G. F. Baker.

H. P. Jennings.

Inventor

Albert T. Quantz

by Foster Freeman Watson & Coit

Attorney

UNITED STATES PATENT OFFICE.

ALBERT T. QUANTZ, OF ROCK HILL, SOUTH CAROLINA.

LOOM.

1,253,992. Specification of Letters Patent. Patented Jan. 15, 1918.

Application filed May 31, 1916. Serial No. 100,886.

To all whom it may concern:

Be it known that I, ALBERT T. QUANTZ, a citizen of the United States, residing at Rock Hill, York county, State of South Carolina, have invented certain new and useful Improvements in Looms, of which the following is a specification.

This invention relates to looms, particularly to looms adapted to weave cord fabrics and has for its object to provide a novel method and apparatus whereby the fabric may be woven more economically than present methods allow, and which enables a better quality of fabric to be produced.

In the weaving of cord fabrics longitudinal stripes or ribs are formed therein by using warp threads of different thicknesses, the body of the warp being usually of single ply thread and the ribs of double ply thread. Pattern forming devices, such as a stationary reed, or the drop bars, in looms where a drop bar stop motion is employed, arrange the warp threads in patterns just before the warp enters the harness.

Due to the fact that the single ply warp threads wind sinuously over and under the woof threads while the thicker double ply warp threads, owing to their greater stiffness, do not, but lie substantially straight in the cloth, it would seem that in weaving a given length of cloth the single ply warp threads supplied should be materially longer than the double ply warp threads supplied, in order that the ends would match and waste be avoided. In practice the single ply warp threads have been sized and rendered comparatively non-elastic while the double ply threads have been left in their original unsized and elastic condition, the single ply threads being wound upon a beam and the double ply threads being wound under considerable tension upon the same beam. The double ply threads are stretched in this winding-on process so that their length in their stretched condition is equal to the length of the non-elastic single ply threads.

In the process of weaving it is desired that the "shortening" of the single ply threads due to their sinuous winding over and under the woof threads be approximately equal to the actual contraction of the double ply threads, resulting in the production of a smooth cloth and no waste due to the two kinds of thread running out at different times.

Heretofore two methods have been employed for supplying the different warp threads to the loom. In one method the single ply sized threads and the double ply unsized threads have been wound in alternate layers on the same beam, the double ply threads being wound under tension, and both varieties passing over the same whip beam when being run off into the loom.

Due, however, to the fact that the unsized threads must be wound upon the beam at equal intervals to secure uniform tension and that in weaving several of these threads are brought together by the pattern forming devices to form each cord running through the fabric, the unsized threads, after leaving the beam, cross over numbers of the sized single ply threads in uniting to form a cord.

This method of letting off the warp threads has proved objectionable and impractical as the fibers projecting from the unsized thread wrap around and entangle with the sized threads in rubbing against them and as a result the breakages, as the threads pass into the pattern forming devices, are excessive and the operation of the loom rendered unprofitable.

A second method has been to wind the sized and unsized threads on separate beams and to mount the two beams on the back of the loom. This method has the advantage that the sized and unsized threads may be kept apart until they enter the pattern forming devices and thus avoids entanglement and breakage. It has major defects, however, inasmuch as the weaver is greatly hindered by the presence of the additional beam, which renders difficult the tying up of broken ends, the cloth produced is often uneven because of the tension on the unsized yarn being too great, and considerable waste is caused because of the practical impossibility of getting both beams to run empty at the same time. The necessity of having two beams and supports also renders this method more expensive than the single beam method.

This invention contemplates using a method which has the advantages of both of the above described methods and the disadvantages of neither. The preferred form of the apparatus used is shown in the accompanying drawings in which,

Figure 1 is a side view of a loom embodying my invention, part being broken away;

Fig. 2 is a perspective view of the same;

Fig. 3 is an enlarged view of portion of a whip roll; and

Fig. 4 is an enlarged view of a detail.

The frame of the loom is indicated by 10 in the drawings and the warp beam by 11, the usual brackets supporting the beam on the frame. The sized single ply warp threads 12 are shown being drawn from the beam and passing over a guide or whip roll 13 and then downwardly into the drop wires 14 of the stop motion devices which are adapted to stop the loom in the case of breakage of a warp thread. The unsized two-ply cords 15 pass from the beam over the auxiliary guide bar 16 and thence into the drop wires 14. As shown in Fig. 1, the sized and the unsized threads are separated as they leave the beam and only come together again as they enter the drop wires, after which they have little or no tendency to become entangled. From the drop wires the warp passes to the harness mechanism, indicated by 17, in the drawings, where the weaving is done.

The whip rolls or guides 13 and 16 are mounted upon brackets 18 and 19, respectively, secured to a rocking member 20 which comprises a portion of a device for compensating unevenness in the tension of the warp, which, however, forms no part of this invention. The whip rolls or guides might be secured to the loom in other ways, provided they occupy positions which cause the warp threads to separate in the desired manner.

Another feature of my invention is to provide the guide 16 with a plurality of staggered holes 21 in the top adapted to receive the tight fitting stem portions of slotted members 22. The slots in the members 22 are sufficiently wide to permit the passage of a thread but will catch all large knots and lumps and break the threads causing the stop motion devices to drop and stop the machine. The slotted members also assist in forming the patterns.

From the foregoing description it will be obvious that the disadvantages present in the methods of letting off heretofore employed in cord fabric looms have been avoided and that the improved method disclosed is more simple, inexpensive and efficient.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. In a loom, the combination with a beam having warp threads thereon, of means for forming cord fabrics by grouping certain of said warp threads, said means comprising separate guide bars arranged above the beam, whereby the warp threads are separated into two layers after leaving the beam, and guiding means between the beam and the harness for collecting and grouping the threads passing over one of said bars.

2. In a loom, a warp beam having two kinds of warp threads, weaving mechanism, a guide bar for each kind of thread arranged and constructed to separate the two kinds of thread as they pass from the beam to the weaving mechanism, and slotted thread guiding members removably mounted in spaced relation on one guide bar to lead the threads to the weaving mechanism in the desired pattern and to catch knots therein.

3. In a loom, a warp beam having a plurality of kinds of threads wound thereon, weaving mechanism, means for separating the kinds of thread as they pass from the beam to the said mechanism comprising guide bars over which the threads pass, one of said bars formed with a series of holes therein adapted to receive and hold in spaced relation members each having a plurality of thread guiding slots therein whereby the threads passing over the latter bar are arranged in the desired spaced relation to form the pattern.

In testimony whereof I affix my signature.

ALBERT T. QUANTZ.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."