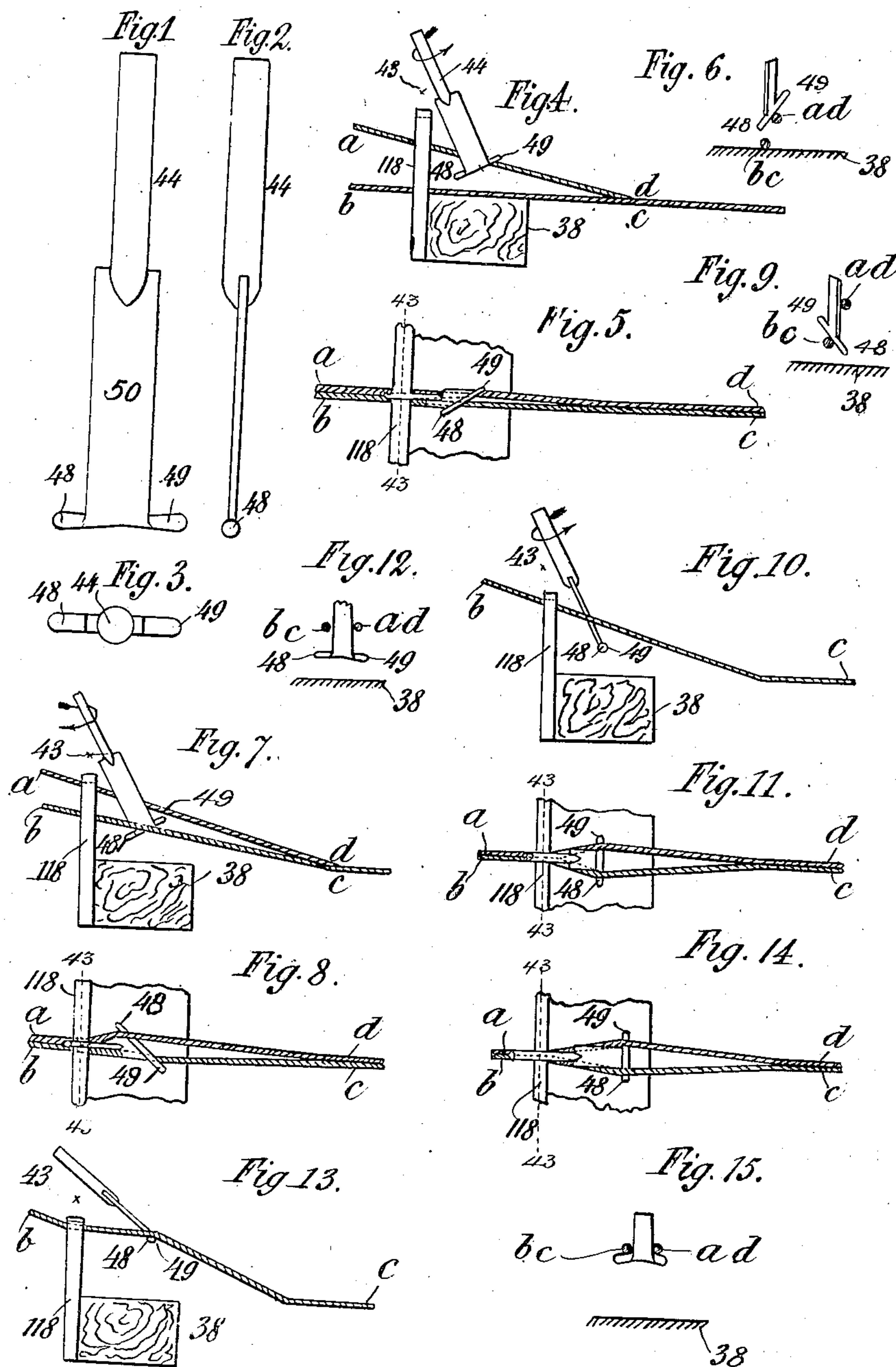


C. & A. RENARD.
 LOOM FOR WEAVING ORIENTAL AND OTHER KNOT STITCH CARPETS.
 APPLICATION FILED JULY 23, 1909.

969,565.

Patented Sept. 6, 1910.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES RENARD AND ALBERT RENARD, OF NONANCOURT, FRANCE.

LOOM FOR WEAVING ORIENTAL AND OTHER KNOT-STITCH CARPETS.

969,565.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed July 23, 1909. Serial No. 509,209.

To all whom it may concern:

Be it known that we, CHARLES RENARD and ALBERT RENARD, citizens of the Republic of France, residing at Nonancourt, (Eure,) France, have invented certain new and useful Improvements in Looms for Weaving Oriental and other Knot-Stitch Carpets, of which the following is a specification.

10 In Patent No. 894,287 dated July 28, 1908 for our looms for manufacturing knot-stitch carpets we have described certain novel principles which relate to the working of two warp threads comprising successively their lift, their separation, their division, their raising, their being held at the disposition of the looping device and, finally, their tension. These various operations are effected owing to the intervention of a special device which is the divider, the said device serving also as a tightener by reason of its peculiar construction and its movements. The divider and the tightener are thus united in a single device.

25 Our present invention relates to a new method of operating this divider and tightener, as well as to slight modifications in the construction of the said device. These improvements and modifications will be fully understood by the following description with reference to the accompanying drawing.

30 In our former patent, the method of separating the two warp threads consisted in lifting them together and separating them one from the other by the point which was provided at the bottom of the divider, which point was brought toward the separating reed-pin of these two threads. The new means which constitutes one of our present improvements acts by lifting the two warp threads, not together, but one after the other, so as to cause a first thread to pass on one side of the divider and afterward, by the combination of the movement of the latter and of the lifting of the second thread, to cause the latter to pass on the other side of the divider, which effects the separation of the two warp threads.

50 Figures 1, 2 and 3 are respectively a side elevation and edge elevation and an end view of the divider; Figs. 4, 5 and 6 are diagrammatic views in side elevation, plan, and end elevation, of the divider in its first position; Figs. 7, 8 and 9 are similar views with the divider in its second position; Figs. 10, 11 and 12 are similar views with

the divider in its third position; Figs. 13, 14 and 15 are similar views with the divider in its fourth position.

Referring to the illustrated embodiment 60 of the improved divider, it is thin on the side and wide on the face, its width determining the divisional distance between the two warp threads for the passage of the grippers of the looping device, the dimensions of which vary according to the thickness and length of the tufts to be knotted. The shoulders have been placed farther down at its lower end.

The same letters of reference as were used 70 in the specification of our former patent indicate the different parts of the divider.

The axis of rotation is the axis of the circular part 44, the shoulders are shown at 48 and 49. The angular part 50 is designed to facilitate the bringing of the two warp threads toward each other, but it may remain straight. 38, is the batten and 118 is the reed. Also the shoulders can be more or less arranged to form hooks and to better 80 retain the warp threads. These are details of formation which are only secondary and which depend on the nature and size of the warp threads employed.

First position: In the three figures 4, 5 85 and 6 the different pieces are shown in one position. The divider has oscillated on its center 43, it is lowered over the warp and at the same time, through its rotation in the direction of the arrow Fig. 4, its shoulders 90 48, 49 occupy an inclined position so that upon the lifting of a first thread *a*, *d* the latter will meet the said inclined part, it can consequently follow it without any impediment by sliding upon the line formed by the 95 shoulders and, continuing its lift, it passes above the shoulder 49.

Second position: Then the divider and the warp threads assume the positions shown in Figs. 7, 8 and 9; by rotating in the direction 100 of the arrow shown in Fig. 7, the divider again presents the line of its shoulders in an inclined position, but in the opposite direction to that shown in Fig. 4, so that the thread *b*, *c*, which is lifted in turn, meets the 105 inclined part of the shoulders, also follows it by sliding, and continuing its lift, this second thread will pass above the shoulder 49.

Third position: In Figs. 10, 11 and 12, it will be seen that the total lift of each of the 110 two warp threads is accomplished, and that the latter are thus raised above the shoul-

ders 48 and 49; the divider is then again actuated by its driving cam, returns in its movement of rotation in the direction of the arrow shown in Fig. 10 and stops and presents the line of its shoulders in a horizontal direction.

Fourth position: Finally (Figs. 13, 14 and 15) the divider is raised; by its width it has divided the two warp threads and, at the same time, by its shoulders 48, 49 it has lifted the two warp threads and it keeps them thus divided or separated one from the other at the disposition of the looping device. Afterward all the complementary operations are accomplished which have been described in the specification of our said former patent for the play of the divider and of the tightener and which assist in the formation of the knot-stitch.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A loom for weaving knot-stitch carpets including in combination a divider, means for moving two warp threads vertically away from the plane of the other warps in two successive movements, and means for locating a portion of said divider alternately in oppositely inclined positions in the paths of vertical movement of said two warp threads so as to force said threads successively in opposite lateral directions.

2. A loom for weaving knot-stitch carpets including in combination a thin divider with a width determining the distance of separation

of the warp threads, having shoulders at opposite sides adapted to hold up warp threads, and having a lower portion at an angle to its length, and means for turning said divider to cause said lower portion to assume alternately oppositely inclined positions in the paths of vertical movement of two warp threads, so as to force said threads successively in opposite lateral directions and to cause them to engage said shoulders.

3. A loom for weaving knot-stitch carpets including in combination a thin divider with its width determining the distance of separation of two warp threads, said divider standing with its longitudinal axis inclined to the vertical and having shoulders at opposite sides adapted to hold up the two separated warp threads, said divider having its lower portion perpendicular to its length, and means for turning said divider alternately to positions in which said lower portion is oppositely inclined, so as to force said warp threads successively in opposite lateral directions as they are lifted and to cause them to engage said shoulders.

In witness whereof we have hereunto signed our names this 1st day of July, 1909, in the presence of subscribing witnesses.

CHARLES RENARD.

ALBERT RENARD.

Witnesses as to Charles Renard:

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