Dec. 23, 1941. M. B. PENMAN ET AL 2,267,666

AXMINSTER SETTING FRAME

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Fig. 2.

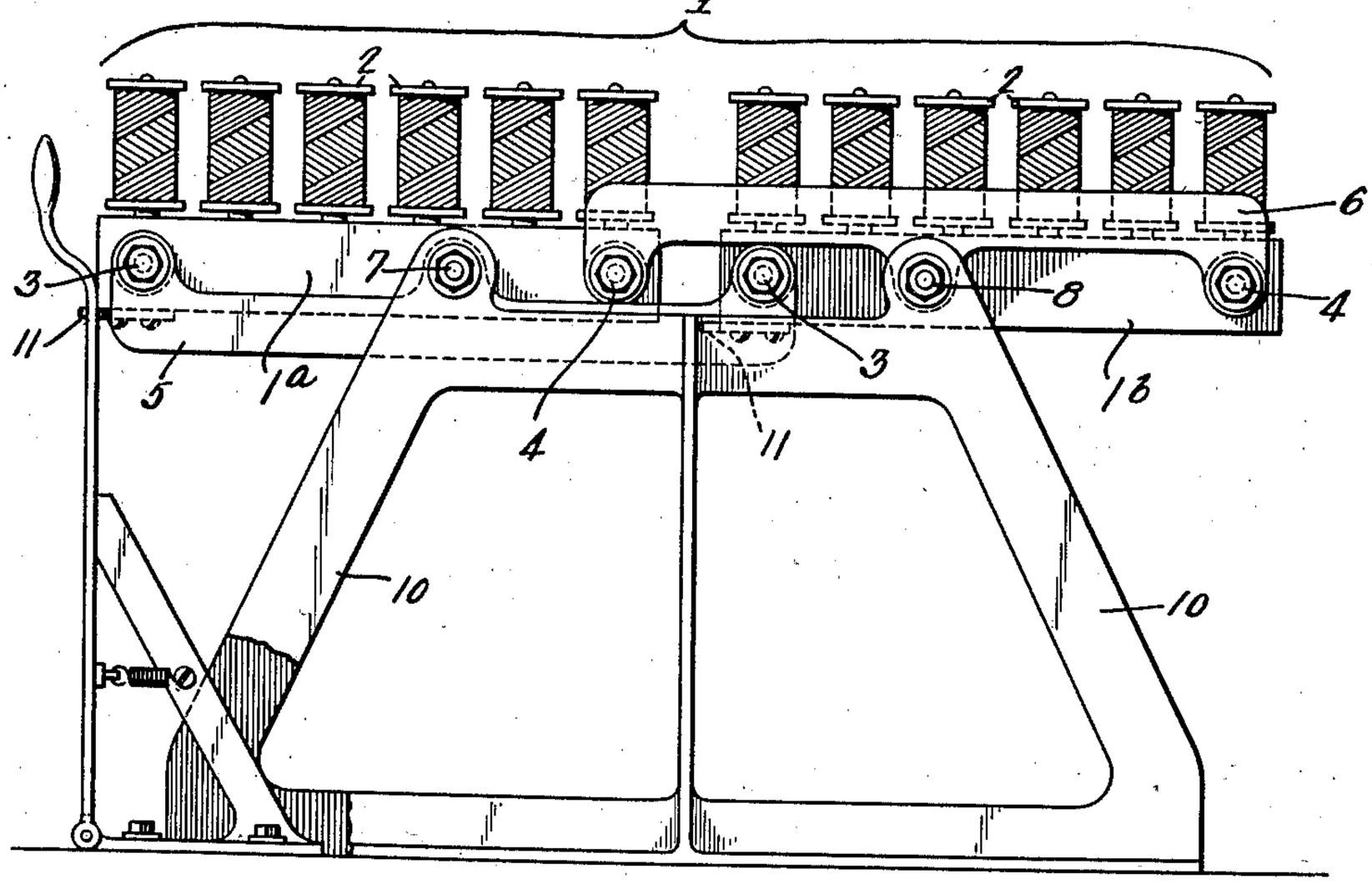

Fig. 1

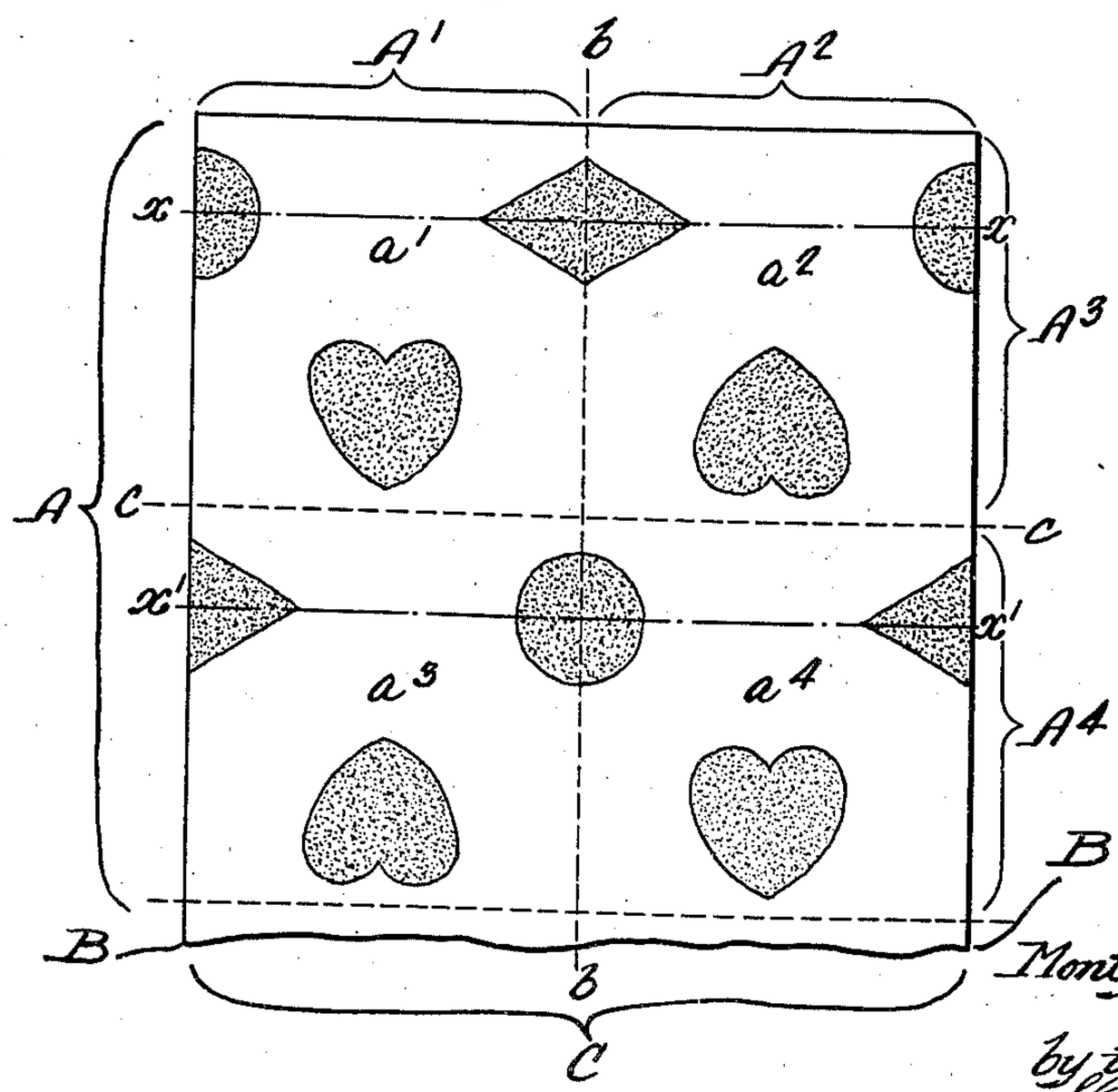

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Fig. 3.

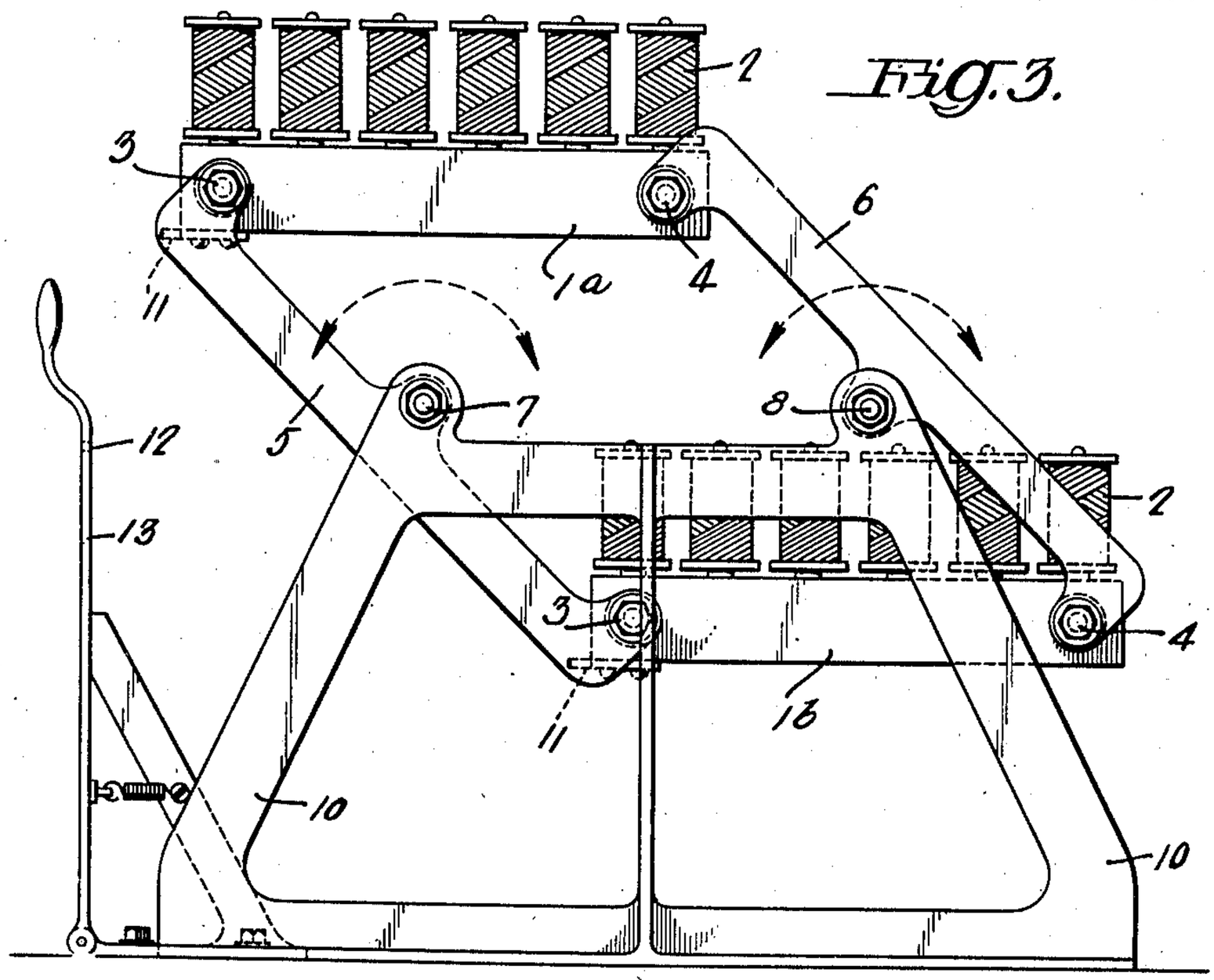
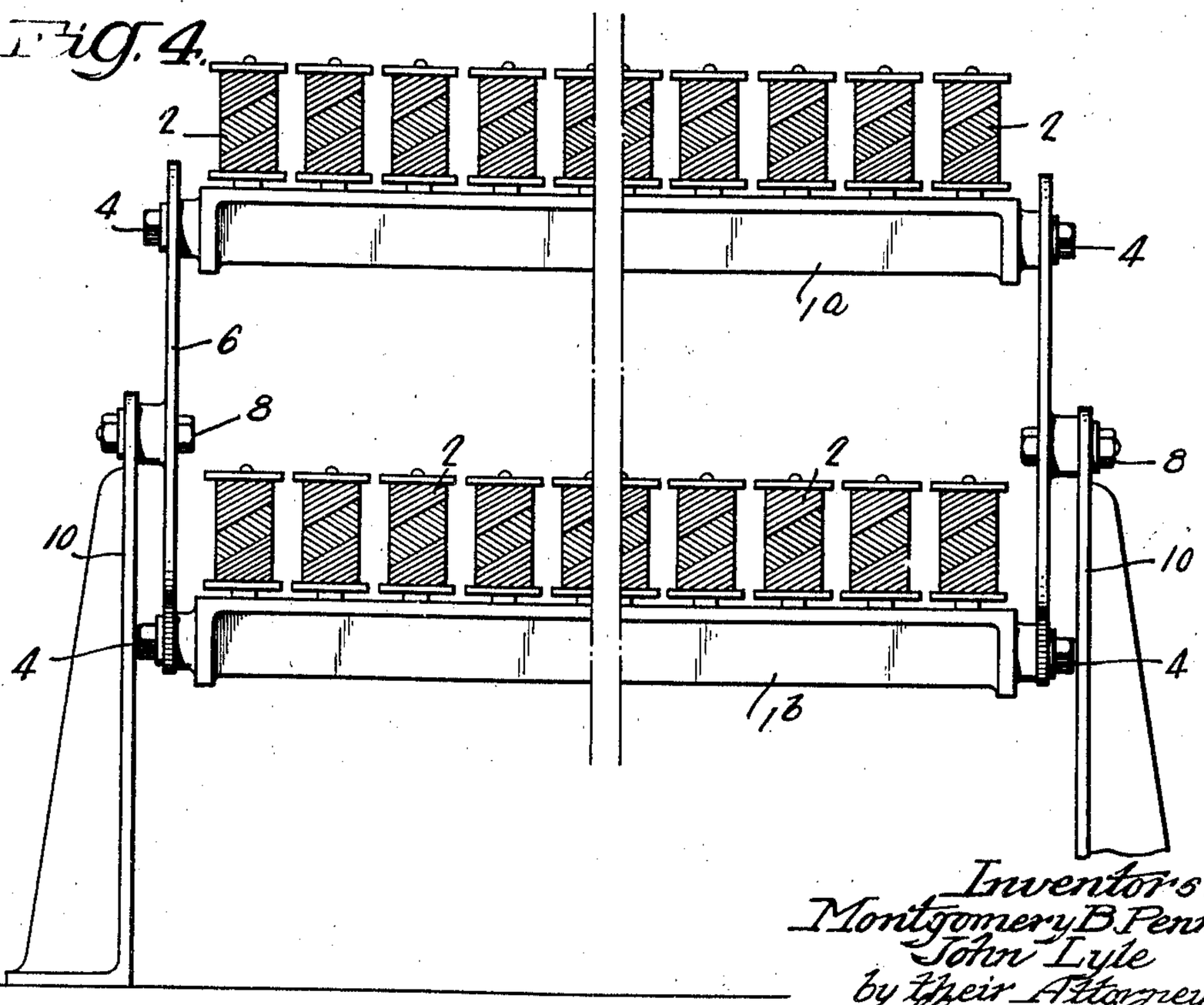


Fig. 4.



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UNITED STATES PATENT OFFICE

2,267,666

AXMINSTER SETTING FRAME

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Original application May 8, 1940, Serial No. 334,042. Divided and this application October 4, 1940, Serial No. 359,810

2 Claims. (Cl. 28—55.5)

This invention relates to apparatus for assembling and winding pile yarns in predetermined laterally abutting relation to each other on the tuft spools of looms adapted for weaving Axminster carpets.

In weaving Axminster carpets, there is a tuft spool employed for each transversely extending row of pile tufts in the carpet; and there is a single pile yarn wound on each spool for each pile tuft in the particular transverse row represented by any particular tuft spool.

The tuft spools are arranged in the order of the rows they respectively represent on the spool carrier conveyer of the loom, to be brought successively into registry with a definite station on the loom adjacent the fell of the carpet being woven, at which the registered spool and its carrier are removed from the conveyer and passed through a course of travel in which the ends of the yarns projecting from yarn guiding tubes on the spool carriers are laid in position between the warps of the carpet at the fell in advance of a weft thread being passed through the open warp shed across the laid-in ends of the pile yarns before the shed changes to tie the weft and the pile ends in place. The laid-in ends of the pile yarns are then severed from the yarns near the ends of the tubes to form a row of tufts, after which the carrier and its spool are restored in their proper place on the conveyer. The conveyer then advances one step to bring the next succeeding tuft spool into registry with the mechanism for lifting the carrier off the conveyer for a repeat of the operations just described.

Prior to the tuft spools being mounted in the conveyer of the loom, the yarns which form the tufts are assembled in predetermined laterally adjacent order in slots or dents of a separating comb or reed in accordance with the color requirement of each individual tuft in the particular transverse line on the pattern represented by the particular spool about to be wound.

The yarns are led to the proper dents in the separating comb from individual supply spools which are mounted on vertical spindles projecting upwardly from a horizontal table lying behind the separating comb.

The operator of the setting-up frame is required to shift the positions of at least some of the supply spools on the table for each and every individual row of pile tufts as called for on the designer's diagram, from which the operator works, unless two or more transverse rows of tufts in the design are identical, in which latter case the desired number of tuft spools are wound from the single set up of the supply spools.

Some designs are of such symmetrical character with respect to the longitudinal center line of the carpet that the pattern may be divided into two or more longitudinal strips by said center line and/or a plurality of laterally spaced parallel division lines, with various different parts, unit areas, or motifs of the design interchangeably positioned in the various strips throughout the length of any single longitudinal repeat of the design as a whole, i. e. with one part of the design located in one strip at one place along the length of the repeat and in another strip at another place along the length of the repeat and with other parts correspondingly distributed in the various strips respectively within the single repeat of the design.

Ordinarily, after the operator has set-up the supply spools for winding a tuft spool for a row extending across the several strips with interchangeable parts of the design in the several strips respectively, it is necessary for the operator to change the positions of the supply spools one by one from position for one of the various strips into position for another of the strips when setting-up the supply spools for a different row in which the design parts are merely changed from one strip to another.

The object of the invention is to eliminate necessity for the above noted spool for spool change on the supply-spool table in cases where two or more tuft rows are similar except for the positions of the design parts being interchanged in the strips.

Each strip is represented by a group of supply spools and according to the principles of the present invention the supply spool table is divided into as many parallel sections as there are parallel strips in the design, with the group of supply spools for the several strips respectively carried by the corresponding parallel sections of the table, whereby, when an interchange of design parts is required from strip to strip it is only necessary to shift the table sections mechanically so that the groups of supply spools may be transferred bodily from position for one strip into position for another strip, thus affording a considerable saving of time and eliminating the possibilities of error commonly occurring in the manual spool for spool transfers under the prior art practices.

The present application is a division of Serial No. 334,042, filed May 8, 1940.

In the accompanying drawings:

Fig. 1 diagrammatically illustrates one form of design adapted to be set up in a frame made and operable in accordance with the principles of the present invention;

Fig. 2 is a normal end view of the frame;

Fig. 3 illustrates the sections of the frame undergoing interchanging of positions; and

Fig. 4 is a side view of the frame as shown in Fig. 3.

As shown in Fig. 1, a complete single repeat A of the type of design to which the present invention is particularly adaptable, is divided across its width into two longitudinal strips A^1, A^2, between the selvedge edges B, B of the carpet strip C, by the imaginary division line *b*—*b*.

Each repeat A is divided into transversely extending strips A^3 and A^4 by an imaginary division line *c*—*c*.

The above noted divisions reduce the total repeat area A into four sub-areas a^1, a^2, a^3 and a^4 respectively. It will be observed that the sub-areas a^1 and a^4 are alike, except as to position relative to the division lines *b*—*b* and *c*—*c*. The sub-areas a^2 and a^3 are also alike, with the same exception.

The area A, in the complete carpet is made up of successive rows of pile tufts parallel to the division line *c*—*c*, and each row of tufts is made up of a number of pile yarns which are wound side by side on a tuft spool for use in the loom as previously noted.

The yarns for winding on the tuft spools are adapted to be drawn from supply spools **2**, **2** which are arranged in a predetermined order for any given row of tufts on relatively movable sections **1***a*, **1***b* of a setting frame table **1**.

The table sections **1***a*, **1***b* are pivoted at **3** and **4** to arms **5** and **6** which in turn are pivoted at **7** and **8** to a rigid frame **10**, at each end of the table **1**, whereby the two table sections may be interchanged, as to position at opposite sides of the common longitudinal center line of the table which corresponds to the longitudinal center line *b*—*b* of the design area A in Fig. 1.

Each section **1***a*, **1***b* has a lug **11** which is adapted to enter an opening **12** in a locking lever **13** to hold the two sections level in a common horizontal plane after each interchange of their relative positions.

Assuming that the supply spools **2** on the table **1** have been set-up to wind a tuft spool corresponding to a row of tufts corresponding to line *x*—*x* in the transverse strip A^3, with the spools for the section a^1 on table section **1***a* and the spools for section a^2 on table section **1***b*, and that a number of tuft spools of that "set-up" have been wound, tuft spools for a corresponding line x^1—x^1 in the transverse strip A^4 may be wound merely by interchanging the positions of the table sections **1***a*, **1***b*, because, as it will be noted upon reference to Fig. 1, that the section a^1 in the transverse strip A^3 is exactly the same as the section a^4 in the transverse strip A^4 and that the section a^2 of strip A^3 is an exact reproduction of section a^3 in strip A^4. Therefore, by merely reversing the positions of the table sections **1***a*, **1***b* to opposite sides of the longitudinal center line of the machine which, as noted above, corresponds to the longitudinal center line *b*—*b* of the pattern A, similar rows of tufts in reverse order for different parts respectively of the design may be wound without necessitating any change in the individual spools **2**, **2** on the table **1**. In this respect, every line of tufts in the transverse strip A^3 has a reversed counterpart in the strip A^4 which may be handled in this manner.

We claim:

1. A setting frame comprising a sectional spool-supporting table comprising a plurality of separate relatively movable sections, and means pivotally supporting said separate sections of said table to afford interchange of positions thereof.

2. A setting frame comprising a sectional spool-supporting table comprising a plurality of separate relatively movable sections, levers pivotally connected at their opposite ends to adjacent separate sections of said table, a rigid frame, and means pivotally connecting said levers intermediate said opposite ends to said rigid frame to afford interchange of position of said separate sections.

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