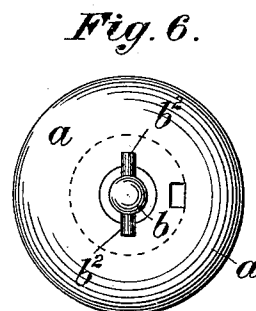
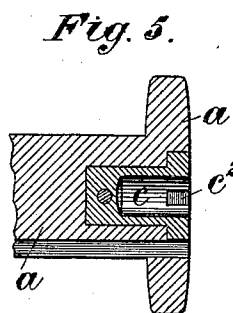
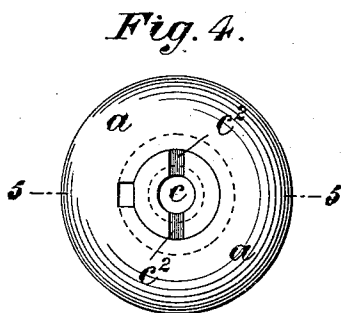
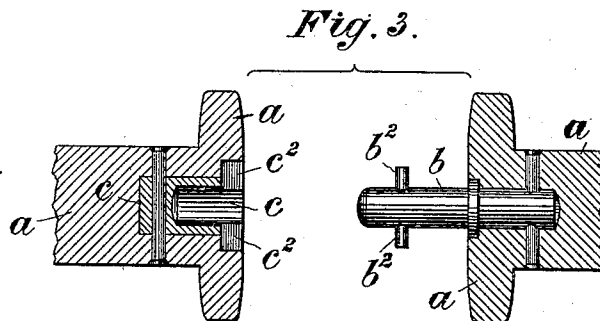
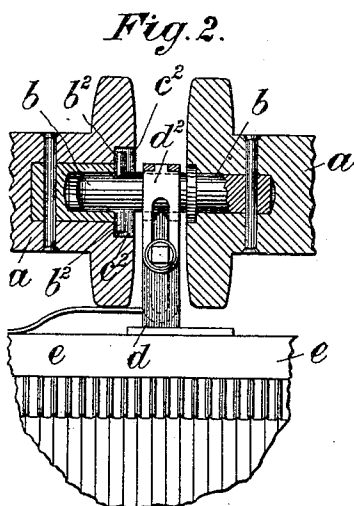
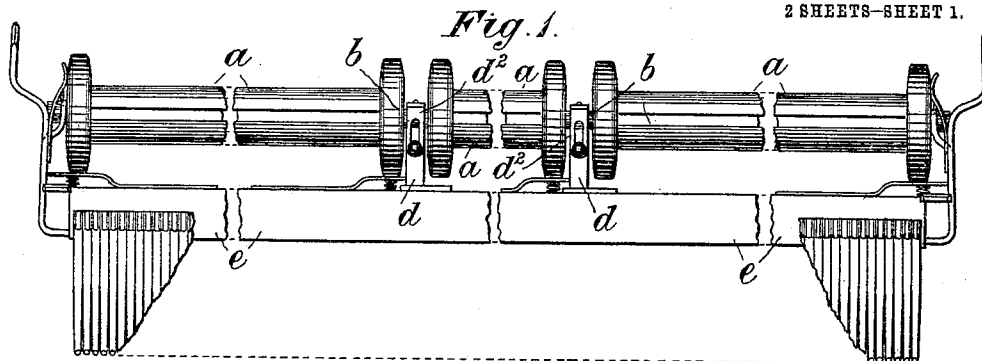


T. COOPER.
TUFT YARN CARRYING SPOOLS OF LOOMS FOR WEAVING TUFTED FABRICS.
APPLICATION FILED DEC. 7, 1908.

1,005,603.

Patented Oct. 10, 1911.

2 SHEETS—SHEET 1.



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Fig. 7.

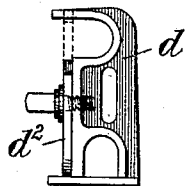


Fig. 8.

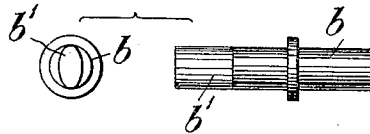


Fig. 9.

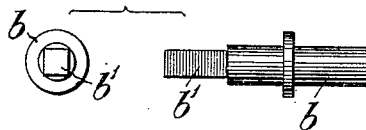


Fig. 10.

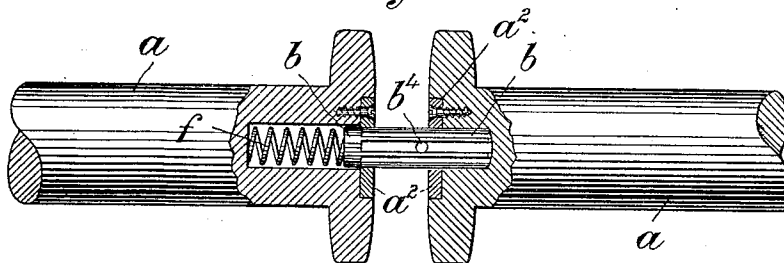


Fig. 11.

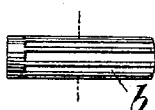
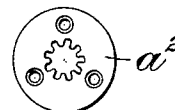


Fig. 12.



Fig. 13.



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UNITED STATES PATENT OFFICE.

THOMAS COOPER, OF FARFIELD, KIDDERMINSTER, ENGLAND.

TUFT-YARN-CARRYING SPOOLS OF LOOMS FOR WEAVING TUFTED FABRICS.

1,005,603.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed December 7, 1908. Serial No. 466,333.

To all whom it may concern:

Be it known that I, THOMAS COOPER, a subject of the King of Great Britain, residing at Farfield, Kidderminster, England, have invented certain new and useful Improvements in and in Connection with the Tuft-Yarn-Carrying Spools of Looms for Weaving Tufted Fabrics, of which the following is a specification.

My invention relates to tuft-yarn-carrying spools of looms for weaving tufted fabrics wherein, as in looms of more than the usual width, two or more of the said spools are arranged end to end or in line in each spool carrying or tube frame, and my invention consists of the improvements hereinafter described in and in connection with the said spools, the object of said improvements being to insure the rotation in unison of the two or more spools in each spool-carrying or tube frame when the tuft yarn is drawn from off the spools in the weaving of the tufted fabric.

The essential feature of my invention consists in so constructing and connecting the adjacent ends of the spools in line that a very efficient interlocking engagement or coupling together of the two or more spools in each tube frame is effected.

I will describe my invention in connection with the accompanying drawing Figure 1 of which represents in front elevation a spool-carrying or tube frame in which three spools in line, interlocked or coupled together according to my invention are employed parts of the spools and carrying frame being broken away. Fig. 2 represents in longitudinal section the adjacent or coupled ends of two of the spools, showing the standard or supporting bearing on the tube frame in which the connecting spindle of the spools rotates when the tuft yarn is drawn therefrom. Fig. 3 is a longitudinal sectional view showing the ends of the spools separated. Fig. 4 is an end elevation of the left hand spool shown in Figs. 2 and 3. Fig. 5 is a transverse section taken on the line 5-5 of Fig. 4. Fig. 6 is an end elevation of the right hand spool. Fig. 7 is a side elevation of a supporting bracket. Figs. 8 and 9 are end and side elevations of two modified forms of spindle. Fig. 10 is a longitudinal sectional view of a further modification of the invention. Fig. 11 is a side elevation of the spindle shown in Fig. 10. Fig. 12 is a cross sectional view of Fig. 11, and Fig. 13

is a detail view of one of the locking plates employed in connection with said spindle.

The same letters of reference indicate the same parts in the several figures of the drawing.

According to the arrangement of my invention illustrated in Figs. 1 to 7 inclusive I provide one end of the central spool *a*, with a fixed projecting spindle *b*, and the adjacent end of the left-hand spool *a'* with a tubular socket *c* the spindle *b* having a length proper to pass through the standard or supporting bracket or bearing *d* on the tube frame *e* and to take into and fit the socket *c*. To provide for an interlocking engagement between the spindle *b* and socket *c* such as will prevent the rotary movement of one spool with respect to the other the spindle *b* is provided with a cross pin *b*² (see Figs. 3 and 6) the projecting ends of which engage with notches or grooves *c*², *c*² (best seen in Figs. 4 and 5) in the outer end of the tubular socket *c* the engagement of the cross pin *b*² with the notches *c*², *c*² being illustrated in Fig. 2. The connection between the mutually adjacent ends of the central spool *a* and the right hand spool *a*² is effected in a similar manner. By the connection or coupling of the adjacent ends of the spools in the manner hereinbefore described and illustrated the rotation of each series of tuft yarn carrying spools as one is insured.

The spindle *b* of the spool *a* is engaged with and disengaged from the socket *c* of the adjacent spool *a'* by employing a bracket or bearing *d* with a slotted sliding front bar *d*² which when in its lowered position (seen in Fig. 7) permits the spindle *b* to be passed into or drawn out of the bracket or bearing *d*. The spindle *b* is passed into the socket *c* when the axes of the two spools are inclined to each other the said spindle *b* entering into the socket *c* as the two spools are brought gradually into line.

I wish it to be understood that I do not limit myself to the particular arrangement hereinbefore described and represented for effecting the coupling of the adjacent ends of the spools as the same may be effected in various ways. For example, instead of providing the fixed spindle *b* with a cross pin *b*² and the outer end or face of the socket *c* with cross grooves or notches *c*², the part *b'* of the spindle which takes into the socket

may have any preferred cross sectional contour other than circular as is illustrated in Figs. 8 and 9, Fig. 8 showing a spindle with an elliptical end and Fig. 9 showing a spindle with a square end the socket *c* having internally a corresponding figure in cross section. Or the ends of both spools may have sockets and a movable spindle be employed therein so as to effect a coupling of the two spools together.

Figs. 10, 11, 12 and 13 illustrate an arrangement where both spools have socketed or tubular ends and a loose or movable spindle is employed.

From an examination of Figs. 11 and 12 it will be seen that the spindle *b*^{*} is of pinion section excepting at one end. The spools *a'* and *a* are each provided with an end disk or plate *a*² having an opening shaped to fit the pinion-like spindle *b*^{*}, one of the disks or plates *a*² being shown separately in Fig. 13. The spindle *b* is passed through one of the disks *a*² before the said disk is secured to the spool, the unnotched end of the spindle being situated on the inner side of the disk. A spring *f* is arranged

in the socket of the spool *a'* which carries the spindle *b*^{*} to press the spindle outward. An opening *b*⁴ in the spindle *b*^{*} permits a tool to be employed for withdrawing the spindle from the adjacent spool socket.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—

In a loom, the combination of a pair of spools arranged end to end; a member connecting the ends of the spools and having its own ends locked against rotation within the spools, whereby the spools are caused to rotate in unison; and a support comprising a member formed with a seat for the reception of the connecting member, and a slide arranged for movement across said seat to retain said connecting member therein.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

THOMAS COOPER.

Witnesses:

RICHARD SKERRETT,
ARTHUR J. POWELL.

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