Feb. 10, 1925. 1,525,811

H. HUGHES ET AL.

SPOOL FRAME FOR PILE FABRIC LOOMS

Filed June 27, 1923

Fig. 1

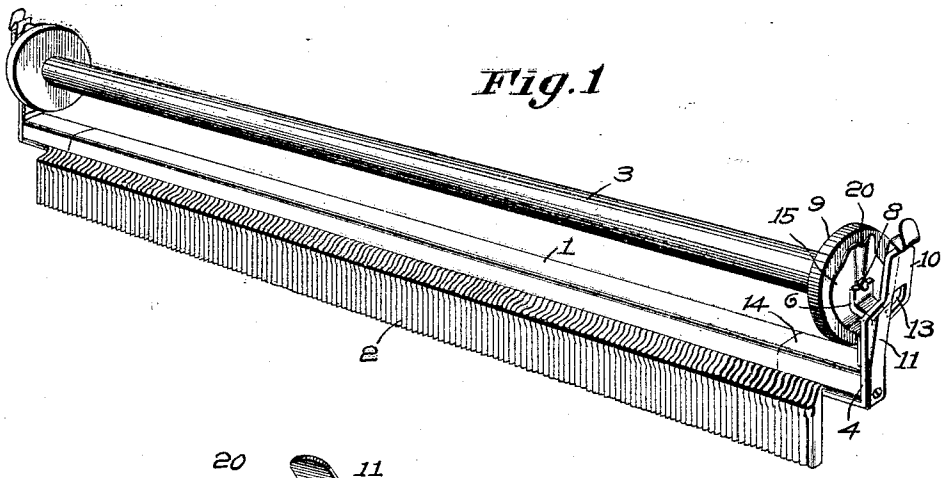


Fig. 3

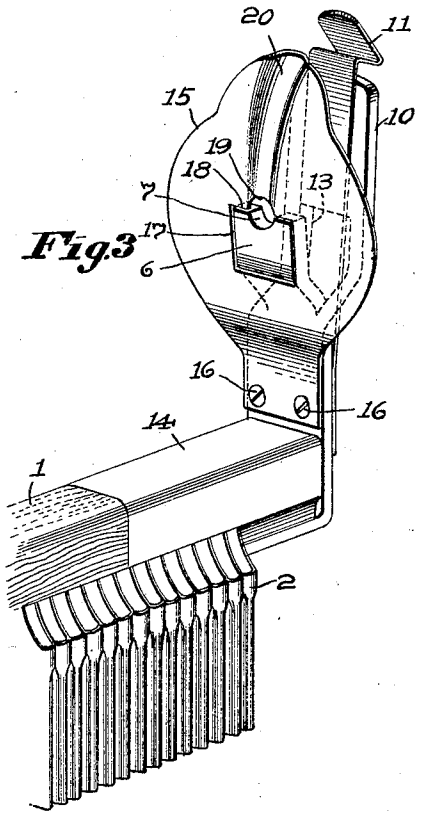
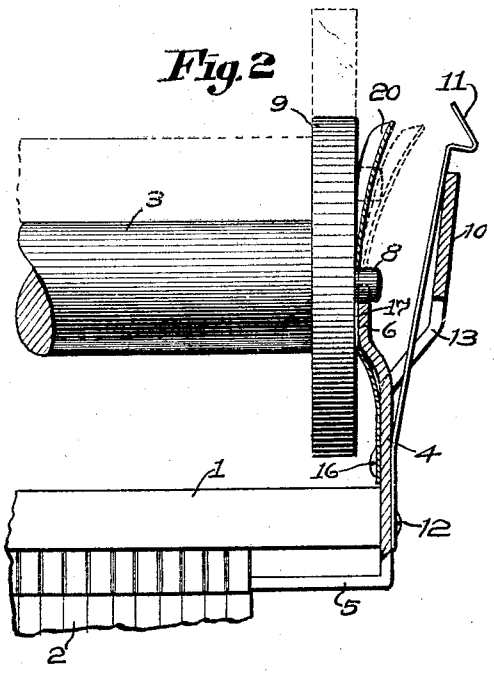


Fig. 2



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UNITED STATES PATENT OFFICE.

HARRY HUGHES AND HOWARD MASON, OF SAXONVILLE, MASSACHUSETTS, ASSIGNORS TO ROXBURY CARPET COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

SPOOL FRAME FOR PILE-FABRIC LOOMS.

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To all whom it may concern:

Be it known that we, HARRY HUGHES and HOWARD MASON, citizens of the United States, and residents of Saxonville, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Spool Frames for Pile-Fabric Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to looms for weaving tufted fabrics and more particularly to the spool frames used in such looms for presenting the tuft forming yarn to the weaving point. It is now the common practice to wind the tuft forming yarn upon a long spool or holder and to support such spool or holder in a frame provided with means for detachably connecting the frame to the spool carrying chain. When the tuft yarn carrying spool becomes depleted, it is necessary to remove the exhausted spool and substitute another, a condition which may arise at different stages of the weaving process. Such spool frames are usually provided with yarn guiding tubes which present the ends of the tuft forming yarn to the weaving point, and in order to prevent too free delivery of the yarn or overrunning, the tuft yarn carrying spool has heretofore been provided with a brake or frictional tension device to prevent too free rotation thereof in the spool frame.

One of the objects of the present invention is to simplify the spool frame and to provide a construction whereby the tuft yarn carrying spools may be readily applied to or discharged from the spool frame, and when in place shall be subjected to a brake or tensioning device.

In carrying out the objects of the present invention the usual bar constituting an element of a spool frame is provided with a bracket at each end of which the pins or arbors of the spool may be supported, and in order to accurately direct the tuft yarn carrying spool to its bearings in the brackets, a novel form of brake or tensioning device is provided. More specifically stated, the brake or tensioning device or plate is attached to the spool frame so that it will bear upon the heads of the spool, and such plate is provided with a guideway for directing the pin or arbor of the spool to the bearing of the supporting bracket.

The various features of the present invention and new construction and combination of parts will best be made clear from the following description and the accompanying drawings of one good practical form thereof, as will now be described.

In the drawings:

Fig. 1 is a perspective view of a spool frame containing the present invention;

Fig. 2 is an enlarged side elevation at one end of the spool frame showing the yielding plate, bearing for the pin or arbor of the spool and the relation of parts; and

Fig. 3 is a perspective view of one end of the spool frame showing the inner face of the friction plate having the guideway for directing the pin or arbor of the spool to its full supporting position.

In accordance with the present invention the spool frame comprises the bar 1 to which is secured the series of yarn guiding tubes 2 for directing the yarn from the spool 3 to the weaving point when the spool frame itself is taken from the chain by the usual mechanism provided in looms of this type to incorporate the tuft forming yarn into the fabric being woven. The yarn tubes 2 are secured to the bar 1 in any appropriate manner and are arranged in a single row as shown, each tube serving its purpose of directing one or more yarns from the spool 3 and presenting the end of the tuft forming yarn to the weaving point.

At each end of the bar 1 is secured a bracket which primarily serves to support the ends of the spool, and in accordance with the present invention, each bracket is formed preferably of a yielding material, such as metal, as indicated at 4, and is of plate form. In the present instance the lower end portion of the bracket 4 is turned inwardly as at 5 and is secured to the end of the bar 1 in rigid relation thereto. The manner of securing the bracket 4 to the end of the bar may be variously contrived as it forms no special part of the present invention.

Each of the brackets 4 is preferably formed of metal and from the upwardly extending portion thereof is punched a bearing 6 having a seat 7 for supporting the pin

or arbor 8 extending beyond the head 9 of the spool and rigid therewith. From the punched out portion each bracket extends upwardly as at 10 to form a stop for the usual spring arm 11 which serves as a means for detachably connecting the spool frame to the spool carrying frame. In the present instance of the invention the spring arm 11 is secured to the end of the bar 1 and to the bracket 4 by a screw 12 and passes upwardly through the opening 13 formed by the punched out bearing 6. It may be desirable in some instances to provide each end of the bar 1 with a metal ferrule 14, as is commonly employed in spool carrying frames.

Extending upwardly from the ends of the bar 1 is a brake or friction plate 15 which may be conveniently secured to the brackets 4 by screws 16 or other securing means. The plate 15 is of yielding or spring character and normally tends to bear with pressure upon the outer face of the spool end or head 9.

The yielding plate 15 is provided with an opening 17 through which the bearing portion 6 of the bracket extends when the yielding plate 15 is displaced outwardly by the pin or arbor of the incoming spool, and the upper wall 18 of the opening 17 is preferably provided with a rounded portion 19 which, when the spool is supported in the bracket bearings, overlies the adjacent end of the spool pin or arbor 8.

In spool frames having yielding bearing plates for exerting a brake tension upon the heads of the spool, much difficulty has been experienced in properly seating the pins or arbors of the spool in the spool supporting bearings because the inner faces of the plates have afforded no means for directing the pin or arbor of the spool to its supporting position.

Another feature of the present invention, therefore, consists in providing the spring plate or brake member with a guideway which may be engaged by the end of the pin or arbor of the spool as it is moved to place to guide the pin or arbor to its bearings. In the present instance of the invention the plate 15 may be preferably formed by a channel extending upwardly from the curved wall 19 whch overlies the pin or arbor 8 of the spool when the latter is in the supporting position. The guideway 20, in the present instance, is shown as impressed into the plate 15 and turned outwardly at its upper end, so that when the tuft yarn carrying spool is moved to supporting position, the pin or arbor 8 of the incoming spool will be directed downwardly of the guideway 20 to automatically push outwardly the spring plate 15 from full to dotted line position, Fig. 2, to permit the pin or arbor 8 to move to supporting position, and in such movement to be guided by the directing influence of the guideway.

When a spool carrying the tuft yarn is placed in the spool frame, and the spring or yielding plate 15 is pushed outwardly by the pin or arbor 8 of the incoming spool, as indicated in Fig. 2, the opening 17 in the plate affords a passageway for the bearing 6 which will extend through the opening to finally receive the pin or arbor 8, whereupon the spring or yielding plate 15 will return to its original position with the face of the plate bearing frictionally upon the adjacent face of the spool head, and the curved portion 19 at the lower end of the guideway 20 overlying the pin or arbor 8, thereby securely maintaining the spool in the supporting portion 6 of the bracket.

The construction described as one good form of the present invention affords means for automatically directing the fixed pins or arbors 8 of the spool to spool supporting position and automatically locks the spool in its bearings.

What is claimed is:

1. A spool frame for tuft pile fabric looms, comprising, in combination, a bar, fixed end brackets secured to the opposite end portions of the bar and provided with spool supporting bearings, a spool brake comprising an upwardly extending spring plate secured at each end of the bar for yielding movement relative to the supporting bearing of said end bracket into frictional engagement with the head of a spool supported in said bearings and provided with a guideway for directing the fixed pins or arbors of the spool into the end bearings, and spring arms for connecting the spool frame to a part of the loom.

2. In a spool frame for looms, the combination of a bar having yarn tubes, a bracket secured at each end of the bar and having a portion constituting a spool supporting bearing, and a yielding friction plate at each end of the bar movable relative to said bearing and having an upwardly extending guideway for directing the pins or arbors of the spool into the supporting bearings.

3. In a spool frame for tuft pile fabric looms, the combination of a bar having yarn tubes, a fixed bracket secured at each end of the bar and having an inwardly extended portion constituting a spool supporting bearing, a separate yielding friction plate at the end of the bar having an opening into which the independently supported bearing extends when the plate is outwardly displaced, and a guideway formed in the plate for directing the spool pin or arbor into the spool supporting bearing.

4. In a spool frame for tuft pile fabric looms, the combination of a bar having yarn tubes, a bracket secured to each end of the bar and having an inwardly deflected por-