

(No Model.)

W. P. KIRKPATRICK.
SHUTTLE FOR CARPET LOOMS.

No. 525,660.

Patented Sept. 4, 1894.

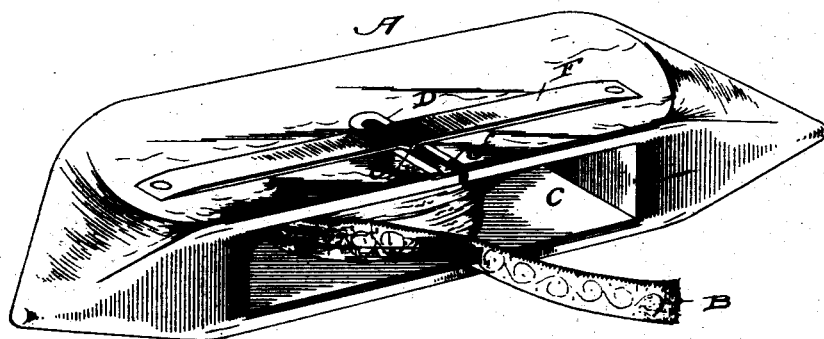


Fig. 1.

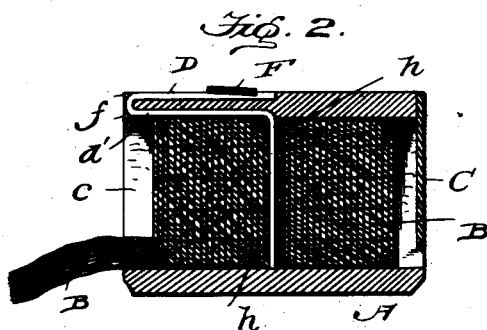
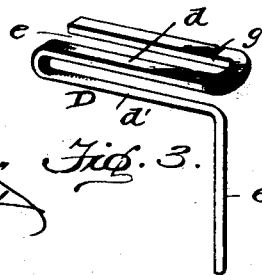
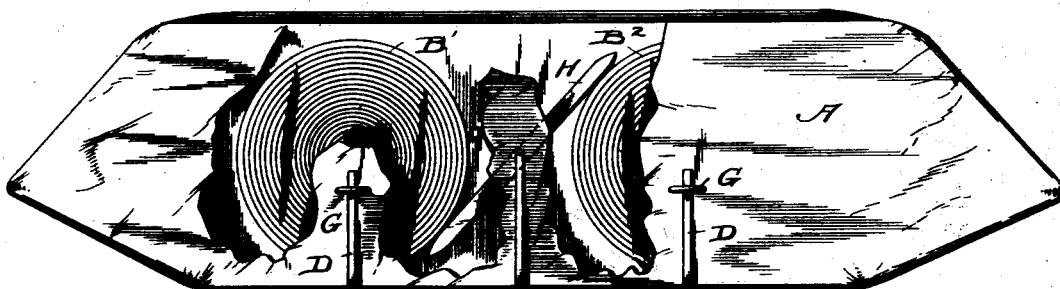


Fig. 2.

Fig. 4.



Witnesses:

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Fig. 3.

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UNITED STATES PATENT OFFICE.

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SHUTTLE FOR CARPET-LOOMS.

SPECIFICATION forming part of Letters Patent No. 525,660, dated September 4, 1894.

Application filed November 15, 1893. Serial No. 491,029. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. KIRKPATRICK, a citizen of the United States, residing at Arrowsmith, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Shuttles for Carpet-Looms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in shuttles for carpet looms, particularly of that class which is designed for weaving rag carpet; and one object of the invention is to provide a shuttle in which the filling will be maintained under a constant even tension and will be in sight at all times and in such a position that it can be easily removed and replaced when desired.

Another object of the invention is to provide a shuttle in which fillings of different color or material can be supported at the same time and it will not be necessary to change the shuttle, or filling therein, in weaving striped or block carpet.

With these ends in view my invention consists in the combination with a shuttle having a filling receiving chamber which is open at its rear side and has a slot in its front wall, of a holder provided with a clamp to hold itself on one side of the body of the shuttle and with a pin or support to maintain a roll of filling in proper position within the chamber therein.

My invention further consists in the peculiar construction and arrangement of parts as will be hereinafter more fully pointed out and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of my improved shuttle. Fig. 2 is a transverse vertical sectional view through the shuttle. Fig. 3 is a detail view of the detachable filling holder. Fig. 4 is a plan view, with a portion of the top broken away, of a modified construction.

Like letters of reference denote corresponding parts in the several figures of the drawings, referring to which—

A designates the body of my improved shuttle and said body, which may be of any desired size and material, is made in the ordi-

nary form and is provided with a central filling receiving chamber which is open at its rear side and in the front wall of which is formed a longitudinal slot, *c*.

The opening in the front wall of the filling receiving chamber of the shuttle may be of the same size as the opening at the rear end thereof and in such case the opening is partially closed by a plate, *C*.

Within the chamber in the shuttle is arranged a roll of filling, *B*, and as the filling is unwound from said roll it is drawn through the slot, *c*, in the front wall of the shuttle. The roll, *B*, is of such thickness as to bear against the upper and lower walls of the filling receiving chamber in the shuttle and is maintained in position in such chamber by a detachable holder, *D*, which consists of two arms, adapted to extend on opposite sides of one of the walls of the shuttle, and a pin carried by one of said arms and adapted to enter the roll of filling and form an axis about which said roll can turn.

As shown in Fig. 3 of the drawings the holder, *D*, is preferably formed from a single piece of suitable material, such as spring wire, and is first bent upon itself to form two parallel arms, *d*, *d'*, which are connected at one end and are adapted to extend on opposite sides of the top of the chamber formed in the shuttle, and the arm, *d'*, is further bent, near its free end, to form a pin, *e*, which extends substantially at right angles to the length of said arm toward the bottom of the shuttle.

The arms, *d*, *d'*, of the holder, *D*, are preferably fitted in recesses or grooves, *f*, formed in the upper and lower faces of the top of the shuttle so that said arms lie flush with the surface of said faces and will not present any projection on which ravelings from the filling can catch as the filling is withdrawn from the shuttle.

If desired a spring plate, *F*, may be attached to the top of the shuttle and arranged to extend across the groove or recess, *f*, therein so that the arm, *d*, of the holder, *D*, will pass beneath said plate, or said arm may be passed through an eye, *G*, as shown in Fig. 4.

The filling is drawn from the roll within the shuttle through the slot, *c*, in the front wall and the strain or pull exerted thereon will clamp the holder, *D*, more securely to the

shuttle and prevent any rearward movement of the roll. As the lower end of the pin, *e*, is free the filling will not catch thereon as it is unwound from the roll and in case a winding should slip it will be drawn under the lower end of said pin instead of being wound around it and the movement of the roll will not be affected.

The roll of filling may be prepared on a common quill or spinning wheel between movable heads in order that it may be of the proper width to fit within the shuttle and contact with the top and bottom of the filling receiving chamber therein. The frictional contact between the roll of filling and the walls of the shuttle insures an even tension on the filling as it is withdrawn from the shuttle.

In weaving finer grades of carpet or if it is desired to use filling which is easily raveled the filling may be wound on a light spool or wound diagonally on a short tube, *h*, into which the pin, *e*, extends when the roll of filling is placed within the shuttle.

In Fig. 3 of the drawings, I have illustrated an embodiment of my shuttle especially adapted for weaving striped or "block" carpets, in which duplicate filling rolls *B'*, *B*², are provided with the chamber of the shuttle, said filling-rolls *B'*, *B*², being composed of different materials or of different colors of the same material.

In weaving carpets with a shuttle having duplicate filling rolls, the filling can be drawn from either of the rolls according to the material or color it is desired to weave into the carpet, and when the roll not in use is of larger diameter, it is liable to be unrolled or rotated by the filling as it is drawn from the roll being used crossing over and coming in contact with the periphery of the unused roll. To overcome this tendency of the unused roll to become unwound, I have devised a plate *H* which serves in some instances the purposes of a brake to prevent the two rolls from being unwound if they are of substantially equal diameter or the plate *H* may be adjusted to bear upon only one of the rolls if they are of unequal diameter. This plate *H* is situated between the two filling rolls and transversely across the shuttle chamber, the length of the plate *H* being such as to cause its ends to lie nearly flush with the edges of the side walls of the shuttle when the plate is turned at right angles across the filling chamber. The plate is pivoted or hung loosely at its middle on a support similar in construction to the holder *D*, and said support of the plate *H* is detachably clamped to one of the walls of the shuttle to enable the plate and its support to be readily removed from the shuttle so that the latter can be used in connection with a single filling-roll as in Figs. 1 and 2.

When the two rolls are prepared of substantially equal diameter and placed in the shuttle, and the filling is taken from one of the rolls, the plate acts as a brake against the

large roll which is not to be used. The small roll of filling will not rotate of its own accord when the shuttle is in motion, but if the thread or filling from the roll in use, crosses over and comes in contact with the unused roll, then the latter roll is liable to be turned by such filling thread or strand; and to overcome this objection, I provide the centrally pivoted plate which serves to prevent the moving filling thread or strand from the roll in use coming in contact with the unused roll.

When the shuttle with the two rolls is used for striping carpet and changes from one filling roll to the other are to be made, the filling strand from the roll not wanted is severed or cut, and the strand or filling is drawn from the other roll until it is again necessary to change the filling, and when this change is made, the end of the strand from the roll now in use draws or bears against the plate so as to shift the latter to the side or toward the unused roll so that the plate protects the unused roll from the action of the strand drawn from the roll in use, the plate being automatically shifted from one side to the other by the action of the strands or fillings against the freely movable plate.

If one of the rolls becomes reduced in diameter through continued use, while the other roll remains large, the plate cannot be adjusted to arrest or brake the small roll, but this adjustment of the brake in direct contact with the small roll is not material, because the small roll has no tendency to rotate on its axis except when the filling is drawn from the other large roll in a manner tending to press or bear against the small roll; in this event, however, the filling from the large roll strikes the pivoted plate and forces it over toward the small roll so that the moving filling from the large roll is prevented by the plate from affecting or rotating the small roll.

My improved shuttle constructed with an open side and a holder which is clamped to the shuttle so as to expose the entire surface of the filling roll has the practical advantage of permitting the ends of the filling to be readily united in case the filling breaks without removing the roll of filling from the shuttle; and furthermore it is a very easy matter to grade the filling as regards quality and color in weaving carpets because the filling roll is always in sight and, if desired, the roll of filling can be quickly changed.

In the shuttle herein described the tension of the filling is not controlled by springs but the contact between the walls of the filling receiving chamber and the filling roll insures an even tension until the roll is exhausted. This is a great advantage in rapid weaving. The fillings from my shuttle are drawn into the carpet straight and even while when filling is forced into a cylinder it puckers and makes the carpet soft and loose.

The holder, *D*, illustrated in Figs. 1 and 3 of the drawings has its upper arm, *d*, divided

into two parallel members which are separated by a space, *e*, in which a depressed portion, *e'*, of the plate, *F*, on the shuttle body, fits when the holder is placed in position in the shuttle; and the rear edge of said depressed portion takes in notches, *g*, formed in the upper surfaces of the members of the upper arm of the holder, *D*.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a shuttle provided with a filling receiving chamber whose rear side is open and in the front wall of which is formed a feed-slot, and a holder provided with a clamp to hold itself on one side of the body of the shuttle, and with a pin or support which forms an axis for the filling roll, whereby the edges of the roll are adapted to have frictional contact with the walls of the filling receiving chamber, as set forth.

2. The combination with a shuttle having a filling receiving chamber formed therein, of a holder consisting of two arms, adapted to extend on opposite sides of a wall of the chamber in the shuttle, and a pin carried by one of said arms and adapted to enter a roll of filling arranged within the chamber in the shuttle, substantially as and for the purpose described.

3. The combination with a shuttle having a filling receiving chamber formed therein, of

a holder formed from a single piece of metal and bent to form two arms, *d*, *d'*, adapted to extend on opposite sides of one wall of the chamber in the shuttle, one of said arms having at its free end a pin, *e*, which extends at right angles to said arm and is adapted to form the axis of a roll of filling arranged within the chamber in the shuttle, substantially as described.

4. The combination with a shuttle having a filling receiving chamber formed therein, of a holder having arms adapted to extend on opposite sides of one wall of the chamber in the shuttle, and a pin adapted to form the axis of roll of filling arranged within said chamber, and a plate, *F*, attached to the shuttle and extending across one of the arms of the holder, substantially as described.

5. The combination with a shuttle having a filling receiving chamber, of holders adapted to be clamped to a wall of the filling-receiving chamber and sustain rolls of filling in said chamber, and a plate hung or pivoted between said holders, for the purposes described substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM P. KIRKPATRICK.

Witnesses:

J. A. PITTSBARGER,
A. G. BARNES.