Dec. 4, 1923. 1,476,480

G. B. AMBLER

FILLING CONTROL MECHANISM FOR LOOMS

Filed Feb. 10, 1922 2 Sheets-Sheet 1

Fig. 1.

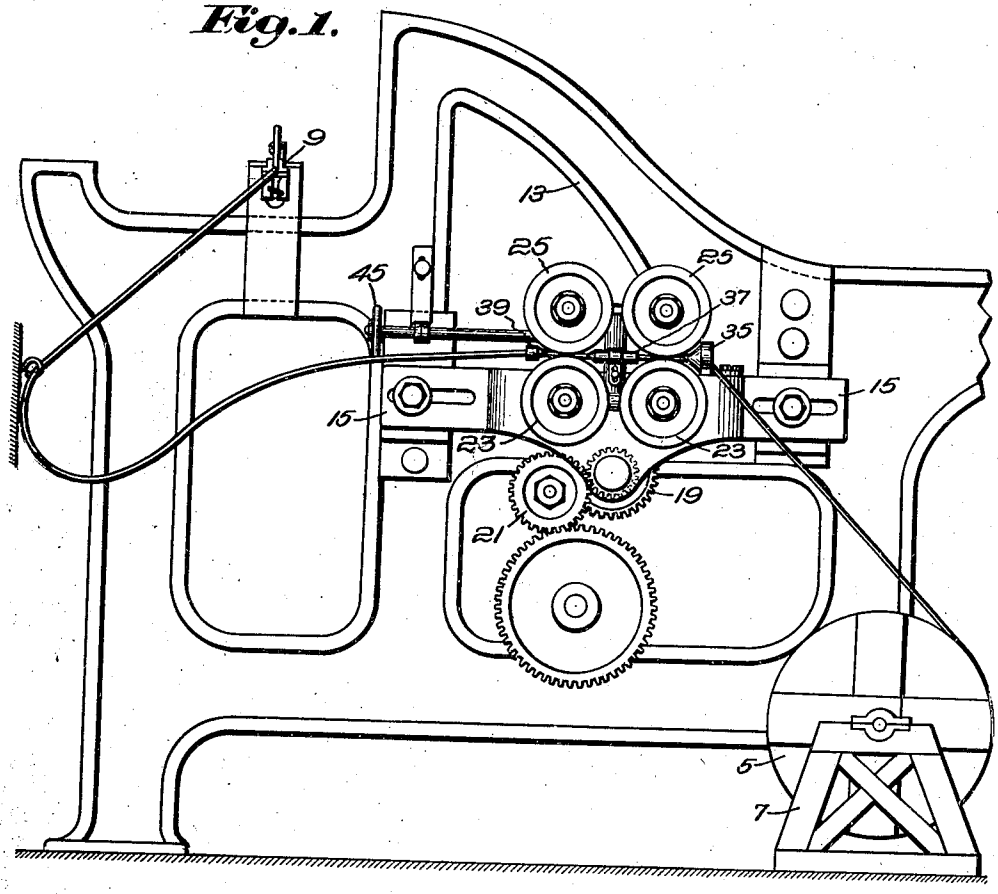
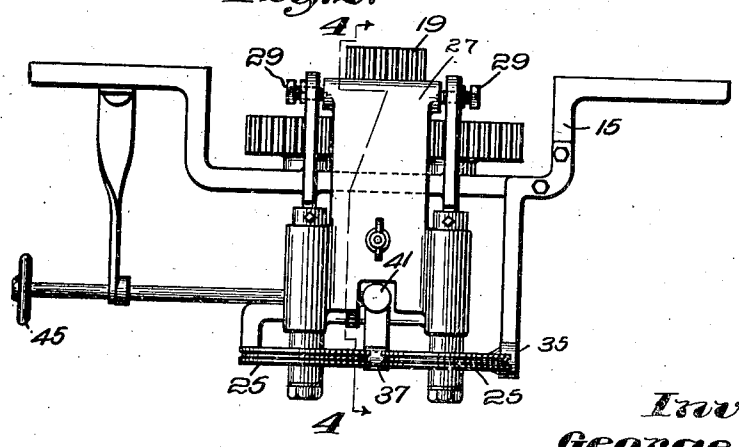


Fig. 2.



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Fig. 3.

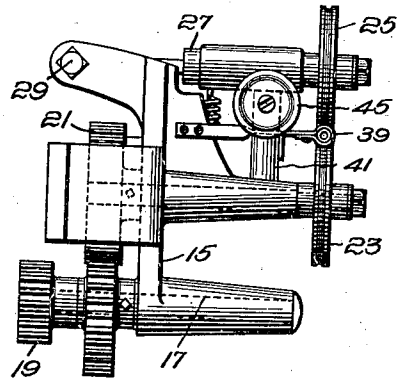


Fig. 4.

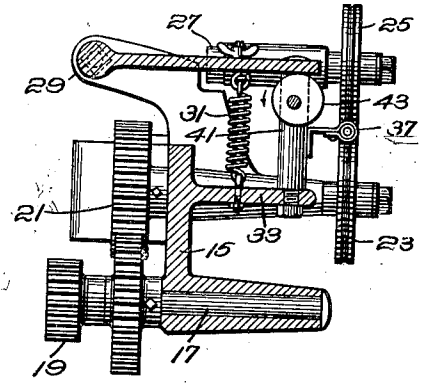
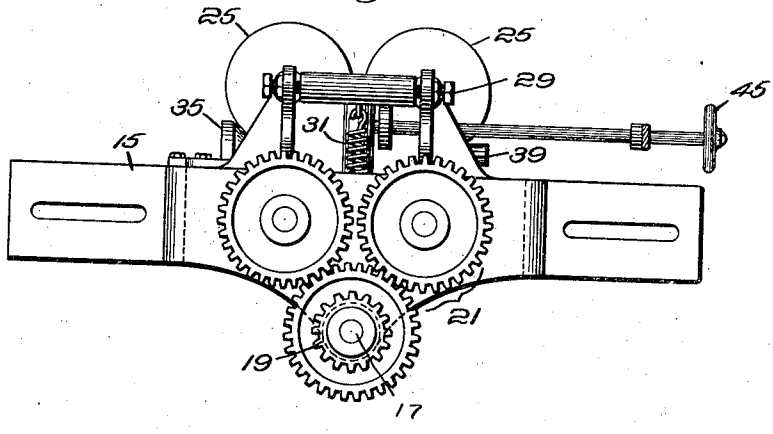


Fig. 5.



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1,476,480

UNITED STATES PATENT OFFICE.

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FILLING-CONTROL MECHANISM FOR LOOMS.

Application filed February 10, 1922. Serial No. 535,476.

To all whom it may concern:

Be it known that I, GEORGE B. AMBLER, a citizen of the United States, and a resident of Leominster, county of Worcester, State of Massachusetts, have invented an Improvement in Filling-Control Mechanism for 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 and more particularly to that type of loom wherein a length of filling is drawn through the shed from a supply as distinguished from the usual practice wherein the supply of filling is carried through the shed on a shuttle. Such types of looms are particularly adapted for weaving relatively stiff and heavy material such as cane, reed and substitutes therefor. The present invention more particularly relates to improvements for facilitating the control of the supply of filling. My invention will best be understood by reference to the following description of an illustrative embodiment thereof shown by way of example in the accompanying drawings, wherein:

Fig. 1 is an end view of the loom having my improvements incorporated therein;

Fig. 2 is a plan view of the filling feeding mechanism;

Fig. 3 is an end view thereof as seen from the left in Figs. 1 and 2;

Fig. 4 is a section on the line 4—4 of Fig. 2; and

Fig. 5 is a rear view.

Referring to the drawings, I have there shown a supply of filling material consisting of a roll 5 of fiber or artificial reed journalled to rotate on a suitable stationary support 7. The end of the filling is supported on one side of the loom frame by the frictional catch 9 and it is seized and a length thereof drawn through the shed by means of a needle or picking device (not shown) in well known manner.

A large roll of heavy material as 5 offers a considerable and varying resistance to unwinding and is subject to inertia. In accordance with my invention I provide means whereby the filling strand is drawn from the roll 5 independently of the action of the needle in such manner that a suitable slack of the filling strand is provided adjacent the holding means 9 as illustrated diagrammatically in Fig. 1 so that the needle acts merely to overcome the frictional resistance of the holding means 9 and operates under substantially constant conditions in drawing the filling between the warps. For this purpose I preferably provide a holding means which may be organized as a unit and secured to the side frame 13 of the loom and herein I provide a suitable bracket or frame 15 which provides a bearing for a shaft 17 at one end of which is a gear 19, herein a spur gear, adapted to mesh with a gear 21 mounted on one of the power driven shafts of the loom, the spur gear connection, of course, being exemplary of other means for providing a power transmitting connection between one of the driven shafts of the loom and the shaft 17. The shaft 17 by means of the gear train 21, best shown in Fig. 5, may serve to drive one or more, herein two, feed wheels 23 suitably journalled on horizontal axes in the bracket 15 and over the grooved faces of which the filling is adapted to be trained. Suitable idle wheels 25 cooperate with the feed wheels 23 and herein I have shown a plate 27 journalled (see Fig. 2) on an axis 29 transverse to the axes of the wheels 23 and having journalled therein the shafts of the wheels 25. The member 27 normally swings by gravity to press the edges of wheels 25 against wheels 23 and I may also provide a spring 31 (see Fig. 4) secured to the member 27 and to a web 33 on the frame 15 for drawing the member 27 downwardly above its axis to press the wheels together.

As seen in Fig. 1 the filling strand is led between the wheels and I have herein shown a bell mouthed fairleader 35 at the intake side thereof, a tubular fairleader or guide 37 between the pairs of wheels and corresponding in position to a common tangent to the pitch circles and a third guide 39 at the further side of the feeding wheels. As seen from Fig. 4, the fairleader 37 may be supported from a post 41 rising at the rear of the wheels from the web 33.

It will be apparent from the description that if the parts are in the position shown

in Fig. 1, the feed wheels 23 will be continuously driven and will draw off the filling strand from the roll 5 and deliver a supply of slack strand between the roll and the holding device 9 as shown in Fig. 1. The needle, operating intermittently, draws up a sufficient amount of the filling strand from this slack without any resistance from the heavy roll 5. The speed of the parts is so proportioned that the continuous feed of the strand supplies constantly sufficient slack for the action of the needle. It is desirable, however, at times to interrupt the feed and for this purpose I provide suitable manually operated means for moving the idler rolls to a position where they will no longer press the strand against the idler wheels. In order that they may stay in this position until it is desired to start the feed again preferably the means for disengaging them is made self-sustaining. Herein I show (see Fig. 4) journalled in the post 41 the shaft of a cam 43 which may be turned by a laterally disposed hand wheel 45 (Fig. 3). Obviously if the cam 43 is turned, for instance, in the direction of the arrow in Fig. 4, it will lift the member 27 against the action of the spring 31, raise the idler wheels 25 from the strand which, being no longer positively pressed against the feed wheels 23, will permit the latter to slip on the same so that the feed is interrupted.

An important feature of the invention is that the filling strand is held for a considerable distance between the two pairs of wheels and by the tubular guide 37 and any kinks or irregularities therein are straightened out and the strand is delivered in good condition for the weaving operation. The member 37 may be designed closely to fit the strand and will to an extent smooth it off. As one set of rolls is disposed on one side of the guide 37 and tends to push the strand therethrough while the second set of rolls is on the further side and tends to pull the strand out, this action may be very effectually accomplished.

Having thus described in detail the particular embodiment of my invention shown by way of example in the accompanying drawings, what I claim as new and desire to secure by Letters Patent is:

1. In a loom of the class described wherein picking means grasps the end of a filling strand to draw it through the shed, a holding device for presenting the end of the filling strand for operation of the picking means thereon, a tubular guide in advance of said holding device of considerable length and closely receiving said strand and power driven strand feeding means to act on the strand adjacent said guide.

2. In a loom of the class described wherein picking means grasps the end of a filling strand to draw it through the shed, a holding device for presenting the end of the filling strand for operation of the picking means thereon, a long straight closely fitting tubular guide through which the strand leads to said device and feed wheels acting on the strand adjacent said guide.

3. In a loom of the class described wherein picking means grasps the end of a filling strand to draw it through the shed, a holding device for presenting the end of the filling strand for operation of the picking means thereon, pairs of feed wheels engaging the strand at spaced points as it leads to said device and a guide closely fitting the strand and occupying substantially the position of a common tangent to the wheels.

4. In a loom of the class described wherein picking means grasps the end of a filling strand to draw it through the shed, a filling strand supply, a holding device for presenting the end of the strand for operation of the picking means thereon, feed wheels acting on the strand between supply and holder and manually operable means for moving at least some of said wheels to a position wherein they are supported out of engagement with the rest thereby to interrupt the feed.

5. A device for feeding filling strand comprising as a unitary mechanism a frame for mounting on the loom side, a shaft carried thereby having an end provided with a gear adapted to cooperate with a gear on a shaft of the loom, a feed wheel taking motion therefrom, a movable support on the frame carrying a cooperating wheel, a spring acting on said support for normally holding the wheels together and manually operable means for lifting and holding said support with the wheels apart.

6. A device for feeding filling strand comprising as a unitary mechanism a frame for mounting on the loom side, a shaft carried thereby having an end provided with a gear adapted to cooperate with a gear on a shaft of the loom, a feed wheel taking motion therefrom, a movable support on the frame carrying a cooperating wheel, a spring acting on said support for normally holding the wheels together and self-sustaining means for lifting the said support to move the wheels apart.

7. A device for feeding filling strand comprising as a unitary mechanism a frame for mounting on the loom side, a shaft carried thereby having an end provided with a gear adapted to cooperate with a gear on a shaft of the loom, a feed wheel taking motion therefrom, a movable support on the frame carrying a cooperating wheel, a spring acting on said support for normally holding the wheels together, a cam cooperating with said support and a handle for moving the cam.

8. A strand feeding device comprising a driven wheel and arm pivoted on an axis transverse to that of the driven wheel, a co-

operating wheel journalled on the arm and means acting on the arm normally to press the wheels together.

9. A strand feeding device comprising a driven wheel and arm pivoted on an axis transverse to that of the driven wheel, a co-operating wheel journalled on the arm, a spring acting on the arm normally to press the wheels together and manually operable self-sustaining means for lifting the arm against the action of the spring.

In testimony whereof, I have signed my name to this specification.

GEORGE B. AMBLER.