June 9, 1931. C. D. BROWN 1,809,619

CLOTH SPLITTING ATTACHMENT FOR LOOMS

Filed Aug. 9, 1929

Fig. 1.

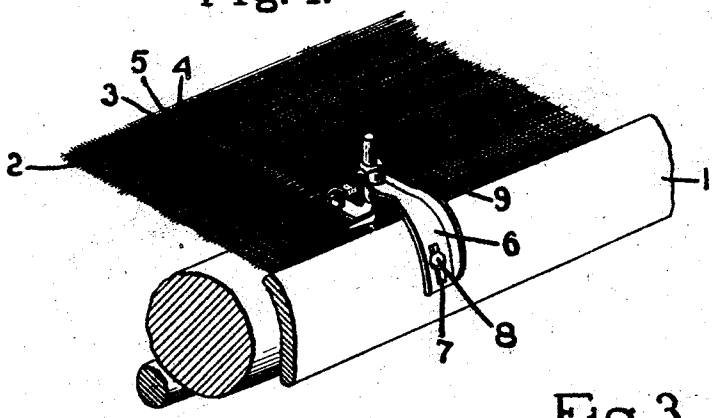


Fig. 2.

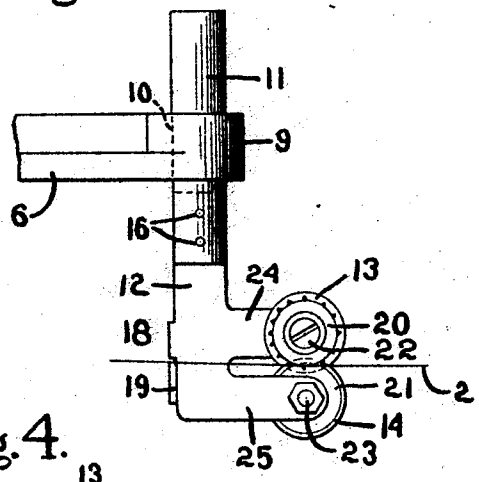


Fig. 3.

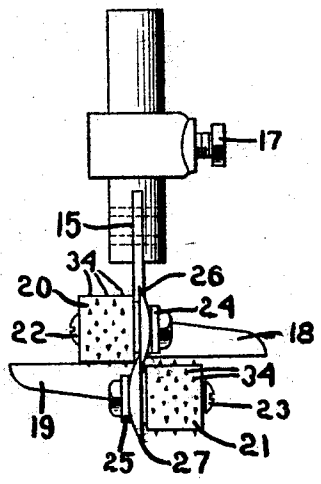
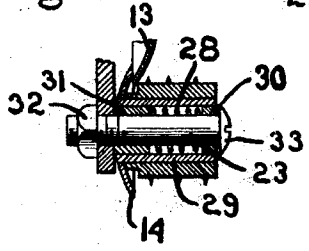


Fig. 4.



Inventor.
Carl D. Brown
by Hazard Smith & Tennant
Attys.

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UNITED STATES PATENT OFFICE

CARL D. BROWN, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO DRAPER CORPORATION, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE

CLOTH SPLITTING ATTACHMENT FOR LOOMS

Application filed August 9, 1929. Serial No. 384,721.

This invention relates to cloth splitting attachments for looms which are fixed to the loom frame to cut lengthwise of the cloth and divide it into a plurality of strips during the weaving operation.

The demands upon the weave loom are varied and it becomes difficult in some cases economically to produce narrow widths of cloth. A loom which is below standard width is not an economical machine to operate. It is desirable therefore to devise other means to produce such narrow widths as may be desired. A cloth splitting attachment such as herein disclosed may be used to divide a relatively wide piece of cloth into a plurality of narrow widths as it is woven on the loom. As many of these attachments may be used as is desired depending upon the required number of strips into which the cloth is to be divided.

The object of the invention is to provide an attachment of this character which will provide a positive and accurate means to cut the cloth.

The object of the invention is further to provide such a device which is simple and rugged in design and which is readily attached to the loom.

The object of the invention is further to provide such a splitting device having rotary cutters driven by the movement of the cloth during the weaving operation.

A further object of the invention is to provide a splitting device which will function smoothly, continuously, and without imposing undue strain upon the cloth at the cutting point.

These and other objects and features will appear more fully from the following description in connection with the accompanying drawings and will be particularly pointed out in the claims.

In order to give a better understanding of the invention a particular embodiment thereof is illustrated in the drawings. The construction of the device however may be modified to the extent permissible by the spirit and scope of the claims.

In the drawings:

Fig. 1 is a general view in perspective showing the device installed on a loom.

Fig. 2 is a side elevation of the device.

Fig. 3 is a view in elevation of the device looking from the rear as installed on the loom.

Fig. 4 is a cross sectional view through the axis of one of the cutters.

The device may be supported from any convenient part of the loom such for instance as the breast beam 1 as herein illustrated. It is not essential but frequently desirable in producing a plurality of widths of cloth by the use of splitting attachments that the edges of the cloth be finished. One method of doing this is by weaving a center or intermediate selvage. The cloth 2 is woven with two parallel selvage portions 3 and 4 having a section 5 therebetween in which the warps are omitted. The splitting attachment is supported in position to cut centrally of the section 5 by a bracket 6.

The bracket 6 has a slot 7 therein through which a bolt 8 passes and by means of which the bracket is adjustably fixed to the breast beam 1. The free end of the bracket is provided with a boss 9 having a vertical aperture 10 therein which receives the post 11. In the lower end of the post is fixed a frame 12 upon which the rotary cutters 13 and 14 are mounted. The frame may be fixed into post 11 in any convenient manner. One effective method is by providing an extension of the frame which is inserted in a slot 15 in the post and fixed therein by means of the rivet 16.

The cutters may be adjusted to cut in the plane of the cloth by moving the post 11 vertically in the boss 9 and when in the desired position locked in place by a set screw 17. In order to provide further assurance that the cloth will be positioned in the cutting line a pair of guide arms 18 and 19 project laterally from the frame 12 one above and the other below the cloth adjacent to the plane thereof. The cutters 13 and 14 have fixed thereto respectively rolls 20 and 21. The rolls with their respective cutters are rotatably mounted upon horizontal studs 22 and 23 extending laterally and in opposite directions from the cutting point one situated above the

cloth and the other below the cloth. The studs 22 and 23 are fixed in arms 24 and 25 which are part of the frame 12. The axes of the studs 22 and 23 are parallel, in a vertical plane, and spaced apart sufficiently to permit the peripheral cutting edges 26 and 27 of the cutters slightly to overlap. The opposing faces of the cutters are ground flat and are held in contact in any suitable manner to form a shear.

The cutters are shown maintained in shearing relation by means of springs 28 upon the studs 22 and 23 which act to move the cutters along their axes into engagement with each other. The cutter 13 with its roll 20 and the cutter 14 with its roll 21 are each fixed rigidly to a sleeve 29 having a bore of sufficient size to receive the spring 28, the outer end of the sleeve 29 having a shoulder 30 concentrically bored to fit the stud 22 or 23. The sleeves 29 are slipped onto their respective studs and the springs 28 put in place, one end thereof bearing against the shoulder 30 and the other end against the sleeve 31 which fits loosely within the main bore of the sleeve 29 and loosely upon the stud. The free ends of the sleeves 31 abut respectively the arms 24 and 25. The inner ends of the studs 22 and 23 are threaded respectively into the ends of the arms 24 and 25 and securely held in place by lock nuts 32. It will be observed that when the various parts of the cutting device are assembled, the springs 28 act to force the cutters into shearing engagement while the heads 33 of the studs 22 and 23 prevent the cutters and rolls from being forced off the studs during assembling.

The rolls 20 and 21 are preferably provided with roughened surfaces or as illustrated herein a very effective construction is to insert a series of pin points 34 in the surface of the rolls. As the cloth moves forward during the weaving operation the rolls engaging the fabric rotate the cutters which positively cut the cloth immediately upon its reaching the cutting point.

Such a device is extremely simple and very effective. It is entirely automatic and has no rapidly moving parts. The motion of the cutters is relatively slow but is found in practice to be entirely adequate thus there is added to its effectiveness the further advantage of long life and freedom from the necessity of repair and renewal of parts.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is:

1. A cloth splitting attachment for looms comprising a rotary shear, means to support said shear normal to, and with its cutting point in, the plane of the cloth, and means actuated by the forward movement of the cloth to rotate said shear to split the cloth longitudinally during the weaving operation.

2. A cloth splitting attachment for looms comprising the construction defined in claim 1, together with means extending above and below the cloth adjacent the cutting point to maintain the plane of the cloth in proper relation to the shear.

3. A cloth splitting attachment for looms comprising a pair of rotary cutters having their cutting edges engaging to form a shear, means to support the shear in position to split the cloth, and means actuated by the forward motion of the cloth to rotate said cutters to split the cloth during the weaving operation.

4. A cloth splitting attachment for looms comprising the construction defined in claim 3, together with a pair of arms extending laterally in opposite directions from the shear supporting means, one above and the other below the cloth and acting to maintain the cloth in proper relation to the cutters.

5. A cloth splitting attachment for looms comprising a pair of rotary cutters one above the cloth and one below having their cutting edges engaging to form a shear, means to support the shear in position to split the cloth, and a roll fixed to each cutter engaging the cloth and rotated thereby as the cloth moves forward during the weaving operation thereby actuating the cutters to split the cloth.

6. A cloth splitting attachment for looms comprising a pair of rotary cutters, means acting upon each cutter along its axis to force the cutting edges thereof into engagement to form a shear, a supporting bracket attached to the loom frame adjustable to position the shear to cut lengthwise and in the plane of the cloth, a toothed roll fixed to each cutter engaging the cloth and rotated thereby as the cloth moves forward during the weaving operation thereby actuating the cutters to split the cloth, and means adjacent the shear to guide the cloth in proper cutting relation to the shear.

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

CARL D. BROWN.