

July 12, 1938.

O. V. PAYNE

2,123,255

PILE CUTTER FOR DOUBLE FABRIC LOOMS

Filed Jan. 27, 1936

2 Sheets-Sheet 1

FIG. 1

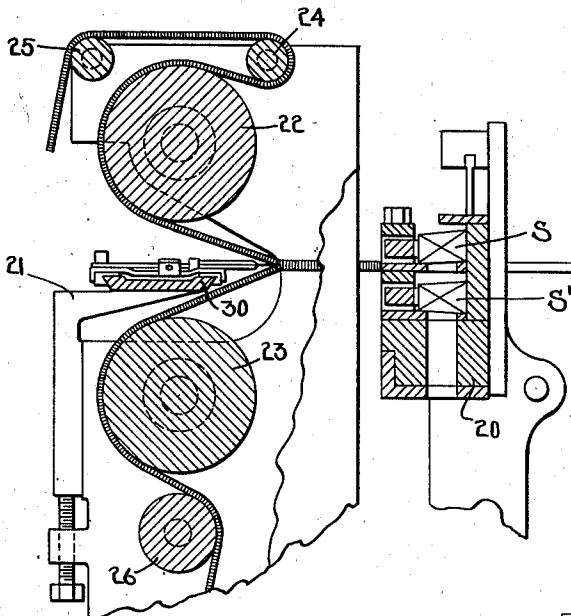


FIG. 6

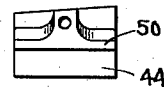


FIG. 4

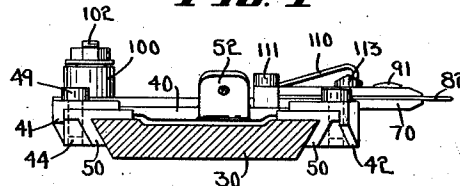


FIG. 2

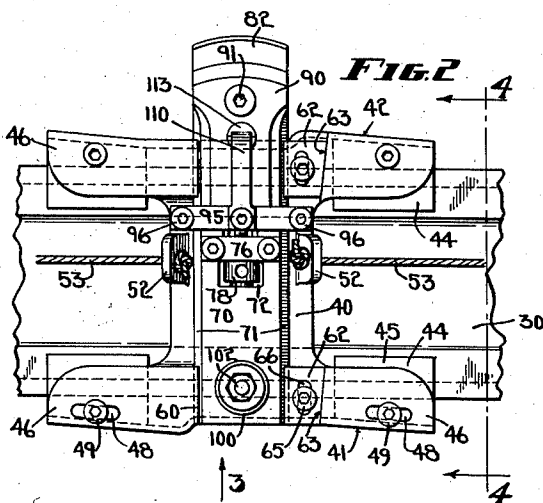


FIG. 5

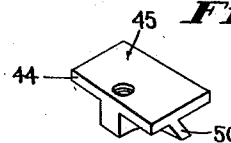
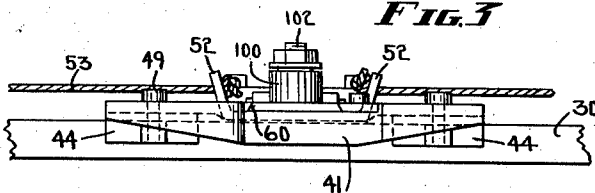


FIG. 3



Inventor
Oscar V. Payne

Chas. T. Hawley
Attorney

July 12, 1938.

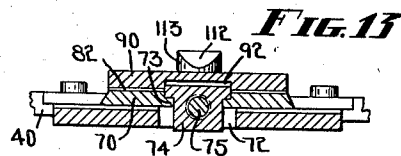
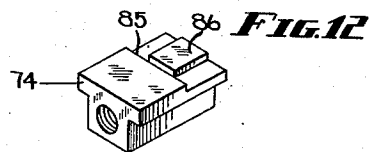
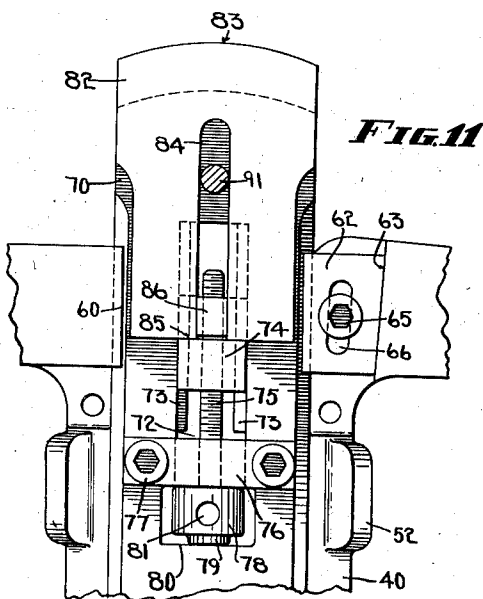
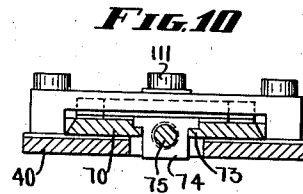
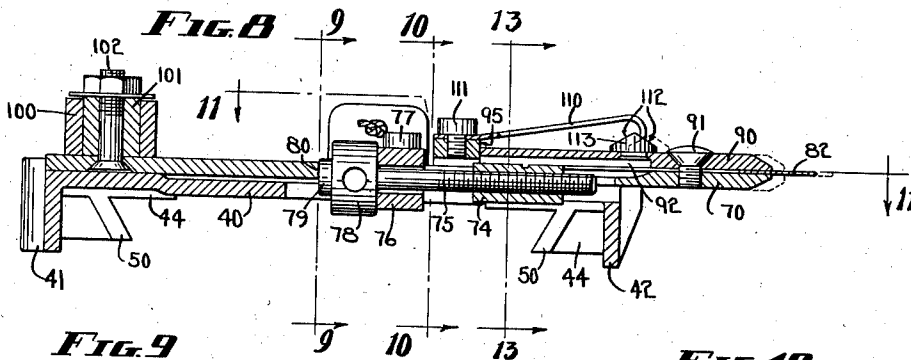
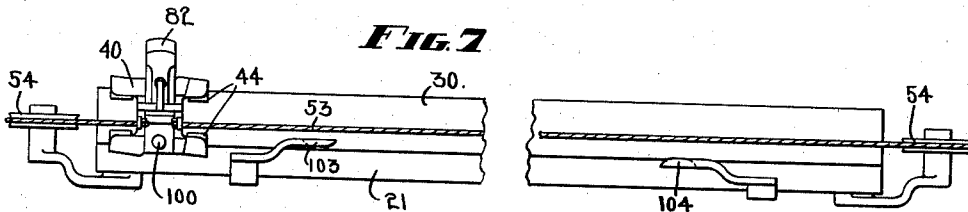
O. V. PAYNE

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2 Sheets-Sheet 2



Inventor
Oscar V. Payne

Charles T. Hawley
Attorney

UNITED STATES PATENT OFFICE

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PILE CUTTER FOR DOUBLE FABRIC LOOMS

Oscar V. Payne, Leicester, Mass., assignor to
Crompton & Knowles Loom Works, Worcester,
Mass., a corporation of Massachusetts

Application January 27, 1936, Serial No. 61,011

8 Claims. (Cl. 26—14)

This invention relates to double fabric looms and particularly to looms for weaving plush or velvet.

It is the general object of my invention to provide an improved construction of cutter for severing the pile threads and for separating the double fabric into two single fabrics.

Important features of my invention relate to novel features of construction, including the provision of improved bearing elements for the cutter slide and the provision of improved knife-holding and knife-adjusting devices.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings, in which—

Fig. 1 is a sectional side elevation of portions of a loom embodying my improvements;

Fig. 2 is a plan view of my improved pile cutter;

Fig. 3 is a front elevation thereof, looking in the direction of the arrow 3 in Fig. 2;

Fig. 4 is a sectional side elevation, taken along the line 4—4 in Fig. 2;

Fig. 5 is a perspective view of a bearing element;

Fig. 6 is a bottom view thereof;

Fig. 7 is a plan view of the breast beam of the loom and certain parts assembled therewith;

Fig. 8 is a sectional side elevation of my improved pile cutter;

Figs. 9 and 10 are sectional front elevations, taken along the lines 9—9 and 10—10 in Fig. 8;

Fig. 11 is a plan view, partly in section, taken along the line 11—11 in Fig. 8;

Fig. 12 is a perspective view of a sliding block, and

Fig. 13 is a detail sectional view taken along the line 13—13 in Fig. 8.

Referring to the drawings, I have shown portions of a double fabric loom including a lay 20, upper and lower shuttles S and S', a breast beam 21, a take-up roll 22, a lower take-up roll 23 and the usual guide-rolls 24, 25 and 26.

A guide-plate 30, preferably of dove-tailed cross section, is mounted on the breast beam 21 and forms a support on which my improved pile cutter is slidable transversely of the loom. The pile cutter comprises a stand or body member 40 having depending front and rear flanges 41 and 42, the end portions of which are inclined relative to the guide-plate 30 as clearly shown in Fig. 2.

Bearing blocks 44 (Figs. 5 and 6) are provided

at each corner of the stand or body member 40. Each bearing block 44 comprises a flat portion 45 adapted to be clamped against the under side of one of four laterally projecting portions 46 of the stand 40.

The front portions 46 are slotted as indicated at 48, and binding screws 49 extend through the slots 48 and are threaded into the bearing blocks 44. Each bearing block also has a downwardly inclined projection or flange 50, adapted to engage an undercut side face of the guide-plate 30, as shown in Fig. 4. Adjustment of the rear bearing blocks is usually not necessary and simple screw holes are commonly provided for the rear bearing blocks in place of the slots 48.

It will be noted that all of the four bearing blocks are identical in shape so that only a single kind of block is used. Preferably these blocks are made of a porous oil-absorbent metal, so that the device will operate without additional lubrication for considerable periods of time.

The stand or body member 40 is provided with side flanges 52, perforated to receive the ends of a cord or cable 53 (Figs. 2 and 7) which runs over guide pulleys 54 at the ends of the breast beam 21. Any suitable mechanism may be provided for pulling the cord or cable 53 back and forth to reciprocate the pile cutter transversely of the loom. One form of such actuating mechanism is shown in the patent to Shuttleworth et al. No. 470,452, issued March 8, 1892.

The middle portion of the body 40 is provided with undercut guideways 60 at front and rear as indicated in Fig. 2, and is also provided with undercut gibs 62 each having an inclined edge portion 63 engaging a correspondingly inclined surface on the body 40. The gibs 62 are secured by clamping screws 65 and are provided with slots 66 to permit forward or rearward adjustment.

A knife support or holder 70 is slidable in the guideway formed between the edges of the parts 60 and 62, and is provided with beveled edges 71 (Fig. 9).

The holder 70 has a longitudinal opening 72 (Fig. 11) provided with side flanges 73 and adapted to receive and support a sliding block 74 (Fig. 12). The block 74 is threaded to receive an adjusting screw 75 (Fig. 8) which extends through an opening in a cross bar 76, secured to the upper face of the holder 70 by binding screws 77 (Fig. 11).

The screw 75 has an enlarged head 78, one face of which engages the cross bar 76 as shown in Fig. 8, and the screw 75 is also provided with

an end portion 79 engaging the end wall 80 (Fig. 11) of the slot or opening 72. The screw 75 is thus held from axial movement relative to the holder 70 but is free to be rotated by inserting a pin in one of the openings 81 in the head 78. By turning the screw 75 it is obvious that the sliding block 74 will be adjusted forward or rearward relative to the holder 70.

A knife blade 82 (Fig. 11) is supported by the holder 70 and is preferably provided with a segmental cutting face 83 and with a longitudinal opening 84. The rear portion of the block 74 (Fig. 12) is cut away to provide a shoulder 85 and a lug or projection 86. The lug 86 is of such width as to fit snugly in the slot 84 of the knife blade, and the rear end of the blade firmly abuts the shoulder 85.

A cap 90 (Fig. 8) is mounted on the holder 70 above the blade 82 and may be clamped against the blade by a binding screw 91 (Figs. 8 and 11) extending through an opening in the cap 90 and through the slot 84 in the blade 82 and threaded into the holder 70.

The under side of the cap 90 is recessed as indicated at 92 in Fig. 13 to fit the upper portion of the block 74 and to be laterally positioned thereby. At its forward end, the cap 90 abuts a cross bar 95 (Fig. 8) when the holder 70 is in the forward or inoperative position indicated in Figs. 2 and 8. The cross bar 95 is secured by screws 96 (Fig. 2) to the stand or body 40. A roll 100 (Fig. 8) is mounted on a bearing sleeve 101 secured to the holder 70 by a bolt 102. As the pile cutter is moved transversely across the loom, the roll 100 alternately engages raised cam bars 103 and 104 (Fig. 7) as it approaches its limit of travel in each direction, and the holder is thus moved alternately forward to inoperative position and rearward to operative or cutting position.

The rearward position of the holder 70 is determined by engagement of the cross bar 76 on the holder with the cross bar 95 on the stand or body 40, and the forward position is determined by engagement of the forward end of the cap 90 with the rear face of the cross bar 95.

A flat spring 110 (Fig. 8) is secured by a screw 111 to the cross bar 95, and the free end of the spring is downwardly offset to engage one or the other of two beveled faces 112 on a stud 113 fixed in the cap 90.

The holder 70, blade 82 and cap 90 are thus held yieldingly in either one or the other of the positions to which they are moved by the action of the cam plates 103 or 104 on the cam roll 100.

Having described the details of construction of my improved pile cutter, the use and advantages thereof will be readily apparent. The bearing blocks 44 provide convenient adjustment for accurately taking up wear relative to the guide plate 30 and a substantial advantage accrues from the use of a single type of bearing block both at the front and rear of the pile cutter. The gibs 62 also provide for convenient adjustment and taking up of wear of the holder 70.

Furthermore, the provision of the screw 75 and sliding block 74 permits convenient and very accurate adjustment of the blade 82 rearward as the blade is reduced in length by wear or grinding. For such adjustment, it is commonly unnecessary to loosen the binding screw 91, as the adjustment is sufficiently powerful so that the blade can be forced rearward between the

holder 70 and cap 90 when the screw 91 is in clamping position.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:—

1. In a loom having a guide-plate, in combination, a pile cutter slidable on said guide-plate and comprising a body member having front and rear down-turned flanges angularly disposed in plan with respect to said guide-plate, a plurality of bearing members wedge-shaped in the plane of said body member, said bearing members being interposed between and abutting said flanges and said guide-plate and definitely spacing said parts, and means to hold said bearing members in position.

2. In a loom having a guide-plate, in combination, a pile cutter slidable on said guide-plate and comprising a body member having front and rear downturned flanges angularly disposed in plan with respect to said guide-plate, a plurality of bearing members identical in form and size and wedge-shaped in the plane of said body member, said bearing members being interposed between and abutting said flanges and said guide-plate and definitely spacing said parts, and means to hold said bearing members in position.

3. In a loom having a guide-plate, in combination, a pile cutter slidable on said guide-plate and comprising a body member having downturned flanges angularly disposed in plan with respect to said guide-plate, a plurality of wedge-shaped bearing members interposed between said flanges and said guide-plate, and means to hold said bearing members in position, said bearing members being formed of oil-absorbing metal, and each bearing member comprising an extended flat top portion having one edge obliquely disposed with respect to the opposite edge and having an undercut bearing flange disposed substantially parallel to said opposite edge.

4. In a loom having a guide-plate, in combination, a pile cutter slidable on said guide-plate and comprising a body member having front and rear downturned flanges angularly disposed in plan with respect to said guide-plate, a plurality of wedge-shaped bearing members interposed between said flanges and said guide-plate, means to fix certain bearing members to said body member in positions in which they abut said rear down-turned flanges, and screw-and-slot connections between other bearing members and said body member, thereby permitting said latter bearing members to be adjusted lengthwise while abutting said front down-turned flanges.

5. In a loom having a guide-plate, in combination, a pile cutter slidable on said guide-plate and comprising a body member having a downwardly flanged lateral extension at each corner of said body member, a plurality of identical separate bearing members supported by said lateral extensions between and abutting said guide-plate and the downwardly flanged portions of said extensions, and means to secure certain of said bearing members to certain of said lateral extensions with provision for longitudinal adjustment of said bearing members relative to said downwardly flanged parts in the direction of sliding movement of said cutter and body member on said guide-plate, such longitudinal adjustment effecting close engagement of said bearing members with said guide-plate.

6. In a pile cutter, a body member, a knife holder mounted to slide on said body member toward and from the fabric, means to shift said knife holder alternately in opposite directions as
5 said body member is reciprocated, a knife blade, means to clamp said blade to said holder, and means to adjust said blade on said holder toward and from the fabric and to firmly support said blade against cutting pressure in every adjusted
10 position thereof.

7. In a pile cutter, a body member, a knife holder mounted to slide forward and rearward on said body member, a knife blade, means to clamp said blade to said holder, and means to
15 adjust said blade longitudinally of said holder, said adjusting means comprising a threaded

block slidable longitudinally in said holder and against which said knife blade abuts, an adjusting screw threaded in said block and rotatable therein, and means to hold said screw from axial movement relative to said holder.

8. A pile cutter comprising a body member, a knife holder slidable forward and rearward on said body member, spaced undercut guiding portions on said body member being engaged by one side edge of said holder, spaced undercut wedge-shaped guiding elements longitudinally adjustable on said body member engaging the opposite side edge of said holder, and means to secure said guiding elements in adjusted position.

OSCAR V. PAYNE.