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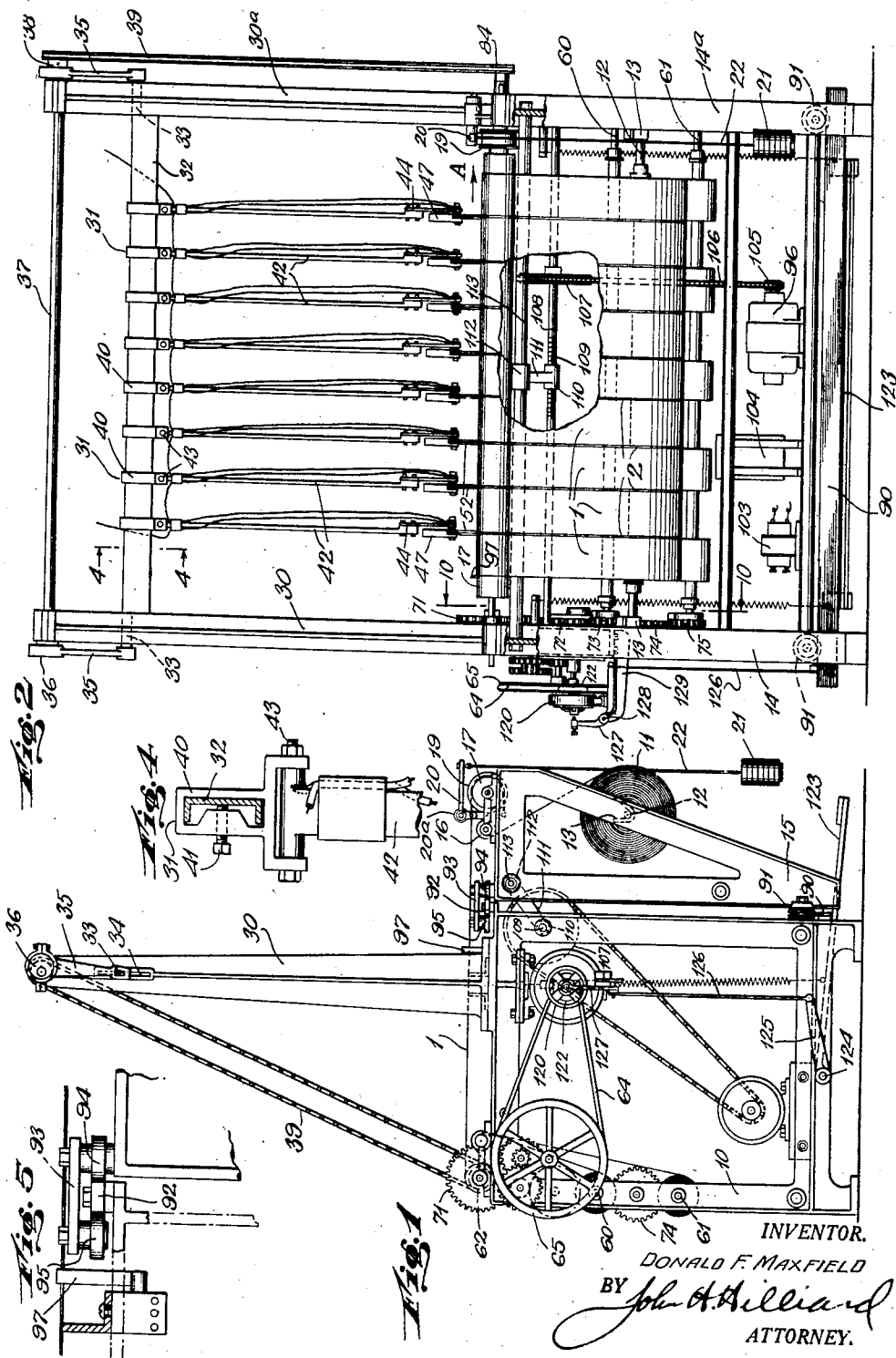
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2,035,138

MACHINE FOR PRODUCING NARROW STRIP FABRIC FROM BROADLOOM FABRIC

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3 Sheets-Sheet 1



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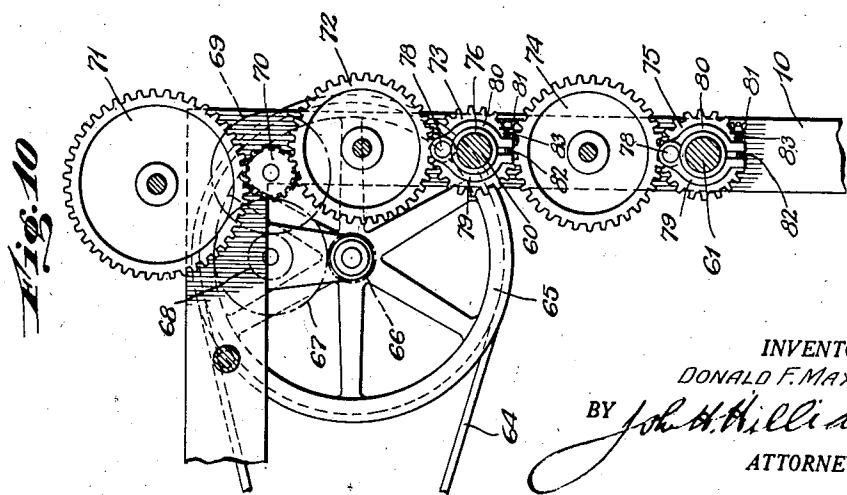
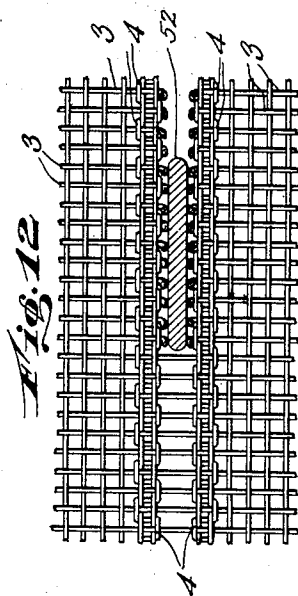
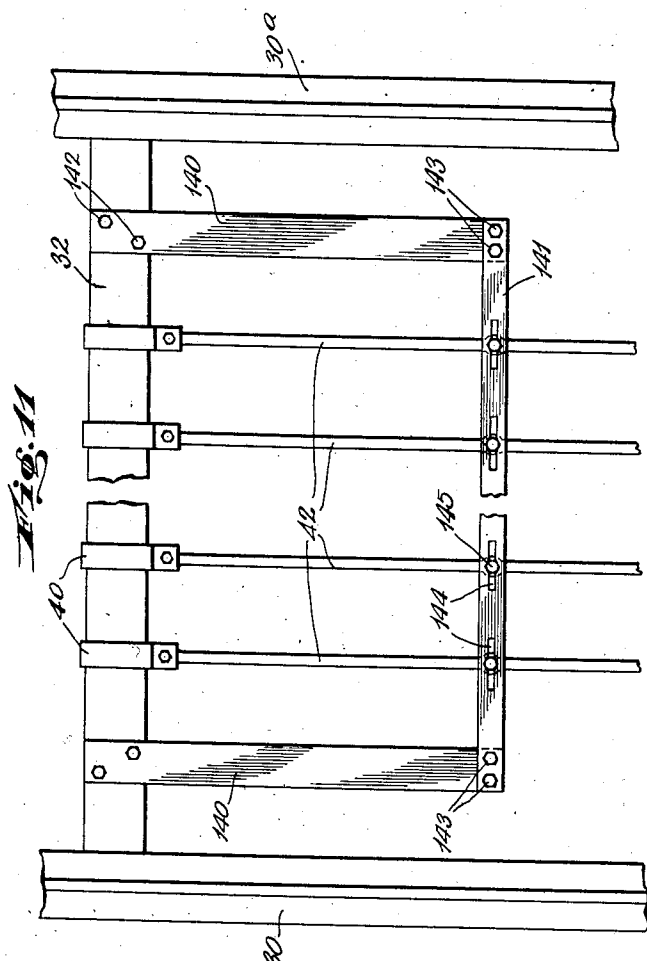
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UNITED STATES PATENT OFFICE

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MACHINE FOR PRODUCING NARROW STRIP
FABRIC FROM BROADLOOM FABRIC

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one-third to Fritz F. Kloeckener, Valley Stream,
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City, N. Y., and one-third to Maurice Gray,
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Application February 20, 1933, Serial No. 657,605

16 Claims. (Cl. 219—29)

The invention relates to a machine for producing "narrow strip" fabric such as ribbon, tape, blanket binding, and the like. In the expression "narrow strip" as applied to the product of the machine, I am using the word "narrow" in a relative sense only, the strips produced or producible by the machine being of any width desired within its capacity but being the product of the separation of a "broadloom" fabric, as will hereinafter be explained.

The object of the invention is a machine adapted for carrying out the process of dividing or separating into strips "broadloom" fabric of material and weave appropriate for the purpose, as, for example, the fabrics described in the now pending patent application of Fritz F. Kloeckener Ser. No. 616,649, filed June 11, 1932. As will be hereinafter pointed out, two embodiments of the machine are shown and described, one for dividing "solid" fabric—that is, fabric which is of homogeneous weave throughout, and the other for dividing specially woven fabric provided with zones of fusible material which define the lines along which the division or separation is to take place. A subordinate but nevertheless important object is a machine that will not only carry out the general purpose above expressed but will be capable of carrying it out at a relatively high speed and with an absence of injurious effect on the product.

Referring to the drawings,

Fig. 1 is a side view of the machine;

Fig. 2 is a rear view of the machine showing it rigged with a roll of "broadloom" fabric in the process of being separated into nine strips of equal width;

Fig. 3 is a plan view of the machine with the separating mechanism removed;

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

Fig. 5 is a detail view of a portion of the mechanism for maintaining proper alignment of the fabric in its travel;

Fig. 6 is a front view of one of the cutting elements with parts broken away to better show its construction;

Fig. 7 is a side view of one of the cutting elements;

Fig. 8 is a detail view of one of the slipping clutches interposed between the shafts for taking up the narrow strip and the mechanism for driving it;

Fig. 9 is a detail view of the slipping clutch of Fig. 8 partly in section;

Fig. 10 is an enlarged detail view showing the gear train for operating the take-up mechanism;

Fig. 11 is an enlarged detail view showing provision for locking the separating units against transverse motion, this form being used in separating "solid" or homogeneous fabric into strips;

Fig. 12 is an enlarged view of a portion of fabric in the process of being severed, the heating element being shown in horizontal section.

I will first describe the machine as suited for separating "broadloom" fabric composed of a number of longitudinal strips 1 separated by narrow zones 2 of readily fusible—preferably thermoplastic—weft threads 3. This type of fabric is illustrated in Fig. 3, where it is shown rigged on the machine in process of being separated. It is fabricated of weft threads or yarns of materials that are fusible by heat preferably at relatively low temperatures and of warp threads or yarns which are not injuriously affected by a temperature which would cause fusion of the weft threads. Examples of suitable material for the weft are: cellulose formate, cellulose propionate, cellulose butyrate, methyl cellulose, ethyl cellulose, and cellulose acetate—the latter being commonly sold under the trade name of "Celanese", and being especially adaptable to my purpose. Examples of suitable material for the warp are: cotton, silk, cotton wool, and natural silk—natural silk being preferable by reason of the comparatively high temperature which it will withstand without injury, and because of its similarity in appearance to the weft material above-mentioned. The fabric may be woven on conventional looms by conventional methods, leaving along the lines of division zones composed only of weft threads of the more easily fusible material above-mentioned.

It should be stated that the materials above referred to are mentioned merely by way of example, the principle of the invention not being departed from by the use of other materials, provided they are susceptible to the differential heat effects herein described. Of course, the range of temperatures between that which will cause disintegration of one material and that which can be safely used with the other will vary with the different materials. As an instance of a suitable combination of materials, I have found a fabric composed of "Celanese" weft threads, which melt at something in the neighborhood of 250° F., and natural silk warp threads which are capable of resisting the acting of heat at 350° or thereabouts without injury, to be satisfactory.

To impart a pleasing appearance to the margins of the strips after they have been separated by the machine and to insure ruggedness, a

doup thread 4 may, if desired, be woven along each margin of each strip except that the outer margins of the border strips are more easily, and therefore preferably, woven with ordinary selvage edges, such as are produced by standard methods of weaving. Any other of the conventional weaves to insure rugged edges of woven fabric may be employed with, or to the exclusion of, the doup thread.

The operating parts are mounted on a suitable main frame 10 and for convenience of description may be divided into the let-off mechanism and the take-up mechanism both cooperating to advance the fabric, the separating mechanism, and the automatic fabric aligning mechanism.

The let-off mechanism.—The supply of "broadloom" fabric may consist of a roll 11 of the same mounted on a shaft 12 in such manner that either the shaft carrying the roll can rotate freely or the roll can rotate freely on the shaft. The shaft 12 is mounted in bearings 13 which, in turn, are affixed to the columns 14 and 14a of a carriage 15, which is capable of a slight motion transversely of the machine—that is, transversely of the path of travel of the fabric—this being for the purpose of maintaining the latter in alignment as will be hereinafter described. The fabric, as it is drawn from its roll, passes over an idler roll 16, then under and around a friction tension roll 17, and thence, as shown in Fig. 1, past the separating line and thence to the take-up mechanism.

Any suitable device for tensioning may be employed, such as the brake band 18 on the brake drum 19. The brake band 18 is tensioned by means of the bell crank lever 20 pivoted on the bracket 20a and from one end of the lever is hung a weight 21 by means of the rod 22. The weight 21 is, as will be seen in Fig. 1, made up of a number of smaller weights so that the tension may be varied by removing or adding weights. If desired, a similar mechanism may be provided at both ends of the tension roll 17 so that more uniform action may be secured.

The strip separating mechanism.—As the "broadloom" fabric is drawn from the supply roll 11 through the tensioning mechanism by the take-up mechanism hereinafter described, it is subjected to the action of the separating mechanism. The separating mechanism may conveniently be mounted on two uprights 30 and 30a fixedly mounted on the frame 10. The separating units, of which in Fig. 2 a gang of eight are shown (each indicated as a whole by the numeral 31) are suspended from the cross-head 32, from the ends of which project studs 33 extending through slots 34 in the uprights 30 and 30a. The studs 33 have a sliding fit in the slots so that the cross-head 32 may be moved up and down by means of the pitmans 35 operated by the eccentrics 36, which, in turn, are fixedly mounted on the shaft 37. These studs are of rectangular section at the portions which slide on the sides of the slots 34, while, of course, the ends of the studs which connect with the pitman are of circular section in order to form bearings. This construction permits free sliding but prevents turning of the crosshead 32. The shaft 37 is rotated through the medium of the sprocket 38 and sprocket chain 39 by power taken from one of the shafts of the take-up mechanism. Each separating unit comprises a clamp 40 slidably mounted on the cross-head 32 so that the respective units of the gang may be spaced as desired for adjustment or for cutting strips

of different widths. The clamp 40 may be provided with a set screw 41 for retaining it in any desired position on the cross-head. From each clamp 40 is suspended a bar 42 pivotally hung from the clamp by means of a pivot bolt 43, so that, while the bar will normally take a vertical position, it is capable of swinging in an arc transversely of the machine. To permit it to respond to very slight forces, it is preferable that the bar be made of very light material, such as aluminum. Each bar carries at its lower end a heating element which may be attached thereto by means of the depending plate 44. In the depending plate 44 are mounted two electric terminals 45 and 46. The terminals 45 and 46 consist of bolts as shown in Figs. 6 and 7 which also serve to clamp the bracket 47 to the depending plate 44. The terminals 45 and 46 are electrically insulated by the insulation 48. Pivotaly mounted on the terminal bolt 46 is a bell-crank lever 49 having an arm 50. From the tip of the arm 50, a length of wire—preferably of "flat" and of high electrical resistance—extends to the bolt of terminal 45; to which it is electrically connected. A tension spring 51 connects the end of the bell-crank lever arm with the bracket 47. Consequently the high-resistance wire 52 is maintained under a substantially constant tension through all temperature variations through which it is likely to pass in the particular use to which it is put in my machine. Current is supplied to the terminals 45 and 46 through the leads 53 and 54, which, in turn, are connected to a suitable source of current. All the heating units are built alike and are connected, preferably in series, with the main source of current supply. It will thus be seen that in each heating element a circuit is established through the terminal 46, the bell-crank lever 49, the resistance wire 52, and the terminal 45.

The separating units are spaced along the cross-head 32 in accordance with the width of the strips to be cut. In the particular case illustrated in the drawings, I have shown a fabric in process of being divided into nine strips of equal width, which, of course, requires eight separating units. It is not, however, necessary that the strips be of uniform width, as the width may be varied according to the spacing of the zones of fusible weft threads in the fabric, which may be anything desired. It is preferable, however, that the separating units be so spaced that they will hang vertically or pensile as the fabric passes. In case, however, the fabric as it travels shifts slightly transversely of the machine, the separating units can swing accordingly, although I have made special provision for what I consider excessive deviation, as will be hereinafter described.

The take-up mechanism.—For taking up the separated strips on spools so that they will be in merchantable form when removed from the machine, I provide two shafts 60 and 61, on which spools of cardboard or other conventional material may be located. A driven traction roll 62 and an idler roll 63 are also provided. The separated strips first pass over and around the traction roll 62, then over the idler roll 63, whence they pass to the spools on the shafts 60 and 61, some of the strips being taken up on the spools on the shaft 60 and the other remaining strips being taken up on the spools on shaft 61; that is, alternate strips of the series are taken up by one set of spools, the other strips being taken up on the other set of spools. This arrangement and

operation are preferable to that of mounting all of the take-up spools on a single shaft, because of the fact that the zone of fusible threads may be in practice very narrow, in many cases not over 1/64" in width. Therefore, it is to be seen that, if all of the separated strips were taken up on rolls in juxtaposition with each other, as would be necessary if they were mounted on a single shaft, there would be likelihood of interference between adjacent rolls of strips. By providing two spool shafts and two sets of take-up spools, ample space is allowed between adjacent rolls of each set, and therefore any difficulty that might arise out of interference between adjacent strips is avoided.

The source of power for driving the take-up mechanism is preferably an electric motor, and as a consequence speed reduction gearing is necessarily introduced between the motor on the one hand and the traction roll and spool shafts on the other. Through a reduction gearing consisting of the belt 64, the large pulley 65, the pinion 66 mounted on the same shaft as the pulley, the gear 67, the pinion 68, and the gear 69,—the motor drives the pinion 70 which is mounted on the shaft on which the gear 69 is mounted.

The pinion 70 drives the gear 71 and thus rotates the traction roll 62, which is fixedly mounted with respect to the gear 71.

The pinion 70 also drives the gear 72, which in turn drives the gear 73, which drives the gear 74—the gear 74 driving the gear 75. Gear 72 is an idler gear; gear 73 is loosely mounted on the shaft 60 but is capable of driving it through the medium of a slipping clutch shown in detail in Figs. 8 and 9. In these figures the shaft 60 is provided with a collar 76 keyed to it as shown at 77, this collar serving merely as a friction surface. On the gear 73 is pivoted at 78 a pair of brake shoes consisting of the parts 79 and 80 (see Fig. 8). The pressure of the shoes 79 and 80 on the collar 76 can be varied as required by turning the wing nut 81 one way or another on the thread of the bolt 82, thus increasing or decreasing the pressure exerted by the spring 83. It will thus be seen that the shaft 60 is driven through the medium of a slipping clutch, which can be regulated as to the amount of its slippage so that, while the strips being taken up on the spools will always be under tension, nevertheless, allowance is provided for variation in peripheral speed of the rolls of strip as they increase in size during a run of material. The gear ratio between pinion 70 and the gear 73 is, of course, such that at all times the speed of rotation of the shaft 60 is at least slightly greater than is necessary for taking up the strips as they leave the traction roll 62. In other words, in practice the clutch shown in Figs. 8 and 9 would always be slipping at least slightly.

The gear 75 is operatively connected with the shaft 61 by a slipping clutch mechanism identical with that just above described in connection with shaft 60, so that, in taking up strip, the shaft 61, the gear 75, and the interposed slipping clutch operate in the same manner.

The sprocket chain 39 heretofore mentioned is driven by the pinion 84 and thus, as the take-up mechanism is in motion, the cross-head 32 with its gang of separating units 31 is caused to reciprocate in a vertical direction.

The automatic fabric aligning mechanism.—It usually happens in practice that rolls of fabric, as they are received from the mill, are not "true"—

that is, the edges of the rolled fabric are not all flush with a plane normal to the axis of the roll. When the departure from this plane exceeds a slight amount the transverse swinging or pensile characteristic of the separating units 31 does not adequately take care of it, and it is, therefore, necessary to bring the fabric back approximately to its position of predetermined alignment, by which I mean alignment with the separating units when they are hanging vertically. This is accomplished by mounting the carriage 15 so that it is capable of a horizontal motion transversely of the path of travel of the fabric and by providing means for automatically moving it one way or the other according to the direction of mis-alignment of the fabric. A convenient way of accomplishing this result is to mount the frame 1, I mount a rail 90 and provide the carriage 15 with grooved rollers 91. On the upper surface of the frame 1, I also provide a rail 92 and also provide the carriage 15 with a bracket 93 carrying rollers 94 and 95 (see Fig. 5). Since the rollers 94 and 95 travel on opposite sides of the rail 92, the carriage 15, while capable of transverse motion, is secured against longitudinal motion.

In order to cause transverse shifting of the carriage 15 and with it consequently the roll 11, I provide mechanism consisting of a "feeler" which, through proper electrical apparatus, closes the circuit one way or the other through the reversible motor 95 according as the fabric departs in one direction or the other from the desired alignment. The feeler 97 consists of a finger mounted to oscillate transversely of the path of the fabric and function as a two-way contact maker. The feeler is mounted on a reversing contact box 98 which is adjustably fastened to the cross-bar 99 by means of a clamp screw 100 passing through the slot 101 so that the box and feeler can be moved transversely of the machine to any position within the range permitted by the length of the slot. The feeler is caused to bear against the edge of the fabric by means of the weighted arm 102, the feeler and arm virtually consisting of a bell-crank. The feeler, in turn, controls through the contact box 98 and a suitable relay 103 and reversing switch 104 the reversible motor 96. The reversible motor 96 is provided with a sprocket 105, which, through the sprocket chain 106, turns the sprocket 107. The sprocket 107 is fixedly mounted on the shaft 108, which is provided with a thread 109 on which the nut 110 is threaded, the nut being provided with an arm 111 which is rigidly connected through the collar 112 with the rod 113. The rod 113 is fixedly connected with the carriage 15.

The operating connection between the feeler, the relay, and the reversing switch is such that, when the feeler is at a predetermined position—which may be termed its zero position—the circuit is open. When the feeler is at one side or the other of this zero point, the circuit is closed but with the current in such direction as to cause the fabric to be returned to alignment, which is preferably determined by the zero position of the feeler. For instance, if the fabric shown at the zero point or point of correct alignment should shift to the left, the feeler would throw the reversing switch in such direction as to cause the motor to turn the shaft 108 to move the frame in the direction of the arrow A (Fig. 2). As soon as the feeler reached the zero point, the circuit would open and there would be no further

motion of the carriage. Similarly, if the fabric should shift to the right, a reverse action would take place, the motor being caused to turn in the proper direction to bring it to the left until the feeler reached its zero position. The zero point of the feeler transversely of the machine can be fixed by moving it along the cross-bar.

For convenience in starting and stopping the take-up and strip separating mechanism, a clutch 120 of any conventional type may be interposed between the motor shaft 121 and the drive pulley 122, and may be operated by a treadle 123 pivoted on the cross-bar 124 and working the clutch member through the arm 125 and link 126. The link works a bell-crank lever 127 pivoted at 128 on the bracket 129, the bell-crank lever in turn operating directly on the clutch to throw it in or out as required. As the detailed construction of the clutch is conventional, no further description of it is here given.

The mode of operation.—A roll of special fabric of the description hereinbefore given is mounted on the shaft 12, and the end drawn over the idler roll 16 and under and over the tension roll 17. It is then drawn over and around the traction roll 62 and then over the idler roll 63, being slitted by a knife, scissors or other convenient cutting instrument in order to permit it to pass the separating units and in order to start the strips on their respective spools. The roll is then positioned on the shaft 12 by means of the clamp stop collars 130 as near as possible in the desired alignment, and the separating units are adjusted along the cross-head 32 so that, when they hang vertically, they are in alignment with the zones of fusible weft threads hereinbefore described. The circuit through the heating elements at the lower ends of the separating units is then closed and the motor put into operation, which causes the strips to be taken up on their respective spools, and the cross-head, together with the separating units, to reciprocate through, and substantially perpendicularly to, the plane of the fabric through a cycle determined by the eccentricity of the eccentric 36. The temperature of the heating elements 52 is, of course, determined by the value of the current in the circuit of which they are a part, and can accordingly be regulated as desired. The temperature of these heating elements is to be coordinated with the speed of travel of the fabric—that is, the speed of the fabric must be sufficiently great so that burning of the edges of the strips will not take place, but must not be so great that the rate at which heat is emitted from the heating element is not sufficient to fuse the fusible weft threads of the dividing zones. The locality on the heating element 52 which is directly supplying heat for separating purposes is constantly changing, so that not only is a continuous and uniform supply of heat assured but localized wear of the fabric on the heating element is prevented, the wear from the friction of the fabric on this heating element being very considerable as I have found from actual experience. In case the fabric becomes displaced from proper alignment transversely of its path of travel, the feeler 97 comes into operation and, through control of the direction of rotation of the motor 96, causes the latter—operating through the thread 109 and nut 110—to move the carriage 15 and consequently the supply roll and roller 62 to its original pre-selected position.

The process results not only in separating the strips by fusion of the connecting weft threads

but also produces a coalescence of the ends of the weft threads with each other and also with a warp thread or perhaps two or three warp threads along the line of cutting, thus forming on the margin of each strip, except on the outer margins of the border strips, a firm binding that is proof against disintegration under the ordinary usage to which such fabric is subjected. Furthermore, when the temperature of the heating element, the quantity of heat produced in it, and the speed of travel of the fabric are properly coordinated, this edge is entirely satisfactory from the standpoint of appearance.

In separating "solid" fabric—that is, fabric of uniform weave throughout, it is not desirable that any transverse motion be permitted the heating elements, since, if it were, they would not maintain alignment, there being nothing in the nature of the zone of fusible weft threads to guide them. In other words, when separating fabric of the type shown in Fig. 12, it is desirable—in fact, necessary—that the heating elements follow the line determined by the zones of fusible weft threads. On the other hand, in separating "solid" fabric, the line of separation is determined by the position of the heating elements and, therefore, if a straight line is to be followed in "solid" fabric, the heating elements must be rendered immovable transversely. I therefore provide a rigid frame consisting of the depending arms 140 and the cross-bar 141, the depending arms 140 being attachable to and detachable from the cross-head 32 by the screws 142 and the depending arms being rigidly connected to the cross-bar 141 by screws 143. The cross-bar 141 is provided with slots 144 through which clamp screws 145 pass and are screwed into threaded holes in the depending bars 42 of each unit. The slots 144 are of sufficient length to permit of adjustment of the heating units through a sufficient range to permit of the separating of strips of the desired width. In fact, instead of a separate slot for each separating unit, the bar 141 may as well be provided with a continuous slot along its entire length so that unlimited adjustment of the separating units may be accomplished. In separating "solid" fabric, the procedure is substantially similar to the procedure in separating the special fabric of Fig. 2, the only difference being such as is created by the fact that in the "solid" fabric there are no defined lines along which the separation takes place. The "solid" fabric should be entirely of material that will yield to the action of the heating elements—such, for example, as all cellulose acetate. The roll of "solid" fabric is arranged on the shaft 12 in the same manner as in the case of the special fabric. It is then slitted on the ends on the lines along which the separating is to take place, and the separated ends of the roll are engaged with spools; the separating units are adjusted to the proper distance; and the machine is started and operated in the manner heretofore described in connection with the operation of the machine as adapted for the separation of the special fabric. The effect of the heat on the edges of the "solid" fabric is to fuse the marginal threads—both warp and weft—together so that a firm and rugged edge is created.

Having thus described the illustrated embodiments of my invention and having in mind that variations and modifications of the same may be made, I define the scope of the invention by the following claims.

I claim:

1. A machine for separating broadloom fabric into strips, comprising mechanism for advancing the fabric, a gang of pivotally suspended heating and fusing elements mounted for reciprocation through the plane of travel of the fabric, and means for causing continuous reciprocation of said heating and fusing elements.
2. A machine for separating broadloom fabric into strips, comprising mechanism for advancing the fabric, and a plurality of heating and fusing elements mounted for reciprocation through the plane of travel of the fabric, the several units of the gang being movable toward and away from each other for the purpose of permitting them to be spaced at predetermined intervals.
3. A machine for separating broadloom fabric into strips, comprising mechanism for advancing the fabric, a crosshead, supports for the crosshead, a plurality of heating and fusing elements suspended from the crosshead by a pivotal connection which permits them to swing, the said crosshead being mounted for reciprocation toward and away from the plane of travel of the fabric.
4. A machine for separating broadloom fabric into strips, comprising mechanism for advancing the fabric, a plurality of pivotally suspended heating and fusing elements, the said heating and fusing elements each comprising a length of resistance wire forming part of an electric circuit.
5. A machine for separating broadloom fabric into strips, comprising mechanism for advancing the fabric, a plurality of heating and fusing elements each pivotally suspended, the said heating and fusing elements comprising a length of resistance wire forming part of an electric circuit, the said resistance wire being stretched between two resiliently yieldable terminals of said electric circuit.
6. A machine for separating broadloom fabric into strips, comprising mechanism for advancing the fabric, and means for separating the fabric into a plurality of said strips as it advances, said means comprising a plurality of heating and fusing units extending through the plane of the advancing fabric, and a mounting for each of said heating and fusing units adapted to permit said heating and fusing units to yield transversely of the path of travel of the fabric.
7. A machine for separating broadloom fabric into strips, comprising a supporting frame, mechanism mounted thereon for advancing the fabric, and means for separating the fabric into a plurality of strips, said means comprising a gang of heating and fusing units arranged in a row transversely of the path of travel of the fabric, and mountings for said heating and fusing units adapted to permit them to yield transversely of said path independently of each other in response to deviations of the line of separation of said fabric from a predetermined point.
8. A machine for separating broadloom fabric into strips, comprising a supporting frame, mechanism mounted thereon for advancing the fabric, and means for separating the fabric into a plurality of strips, said means comprising a gang of heating and fusing units arranged in a row transversely of the path of travel of the fabric, and mountings for said units adapted to permit them to yield independently of each other in a direction lateral with respect to the path of travel of the fabric.
9. A machine for separating broadloom fabric into strips, comprising a supporting frame, mechanism mounted thereon for advancing the fabric, and means for separating the fabric into a plurality of strips, said means comprising a gang of heating and fusing units arranged in a row transversely of the path of travel of the fabric, each of said units being pivotally suspended to permit swinging in a plane intersecting the line of travel of the fabric in either direction from a position of equilibrium.
10. A machine for separating broadloom fabric into strips, comprising a supporting frame, mechanism mounted thereon for advancing the fabric, and means for separating the fabric into a plurality of strips, said means comprising a gang of heating and fusing units arranged in a row transversely of the path of travel of the fabric, each of said units being pivotally suspended to permit swinging in a plane intersecting the line of travel of the fabric in either direction from a position of equilibrium.
11. A machine for separating broadloom fabric into strips, comprising a supporting frame, mechanism mounted thereon for advancing the fabric, and means for separating the fabric into a plurality of strips, said means comprising a gang of heating and fusing units arranged in a row transversely of the path of travel of the fabric, each of said units being mounted to permit swinging in a plane intersecting the line of travel of the fabric in either direction from a position of equilibrium.
12. A machine for separating broadloom fabric into strips, comprising a frame for supporting the operating parts, mechanism mounted on said frame for advancing the fabric in a horizontal plane, means for separating the fabric into strips of predetermined width as it advances, said means consisting of a support mounted or superimposed on the frame, a crosshead mounted in sliding bearings in said support, a gang of heating and fusing elements pivotally suspended from said crosshead to permit each element to swing laterally of the path of travel of the fabric, and means for causing vertical reciprocation of the crosshead.
13. A machine for separating broadloom fabric into strips, comprising mechanism for letting off the fabric under yielding resistance, mechanism for drawing the fabric from the let-off mechanism and for taking up the separated strips, a plurality of heating and fusing elements mounted for reciprocation through the plane of travel of the fabric, and means for restoring the fabric to a predetermined path of travel when it departs from said path.
14. A machine for separating broadloom fabric into strips, comprising mechanism for letting off the fabric under yielding resistance, mechanism for drawing the fabric from the let-off mechanism and for taking up the separated strips, a plurality of heating and fusing elements mounted for reciprocation through the plane of travel of the fabric, and means for restoring the fabric to a predetermined path of travel when it departs from said path beyond a predetermined extent.
15. A machine for separating broadloom fabric into strips, comprising a supporting frame, a traveling carriage mounted on said frame, mechanism mounted in said carriage for letting off the fabric under yielding resistance, mechanism mounted on the frame for drawing fabric from the let-off mechanism and for taking up the separated strips, a plurality of heating and fusing elements mounted

ed for reciprocation through the plane of travel of the fabric, and means for moving the traveling carriage transversely of the path of travel of the fabric when the said fabric deviates from the said path.

5 16. A machine for separating broadloom fabric into strips, comprising a supporting frame, a traveling carriage mounted on said frame, mechanism mounted in said carriage for letting off the
10 fabric under yielding resistance, mechanism

mounted on the frame for drawing fabric from the let-off mechanism and for taking up the separated strips, a plurality of heating and fusing elements mounted for reciprocation through the plane of travel of the fabric, and means for moving the traveling carriage transversely of the path of travel of the fabric when the said fabric deviates from the said path beyond a predetermined extent.

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