May 2, 1961 J. K. McCUTCHEN 2,982,240

METHOD OF AND APPARATUS FOR PRODUCING TUFTED PRODUCTS

Filed Aug. 21, 1959 2 Sheets-Sheet 1

Fig. 1.

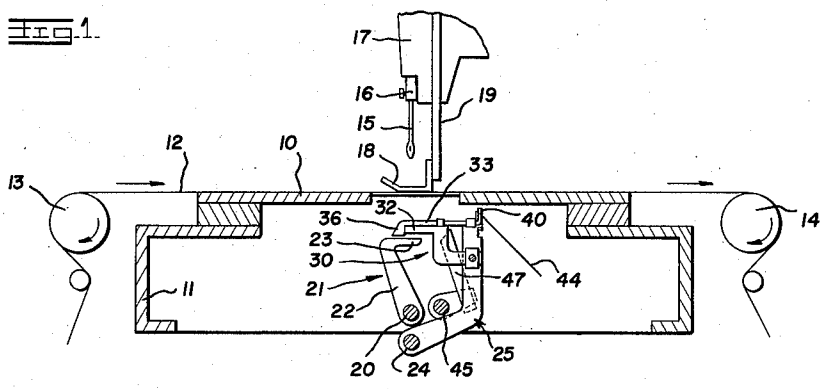


Fig. 2.

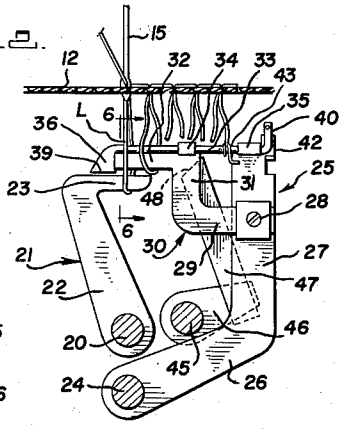


Fig. 2A.

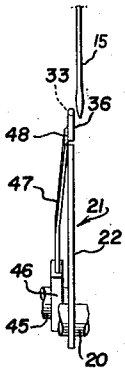


Fig. 3.

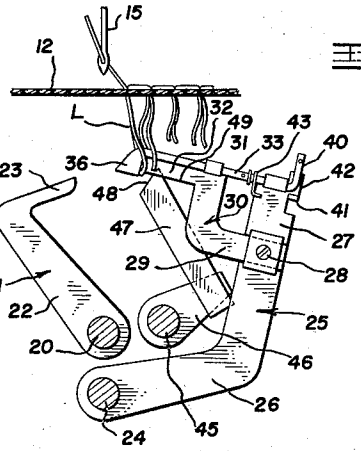


Fig. 6.

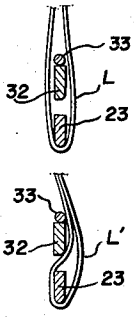
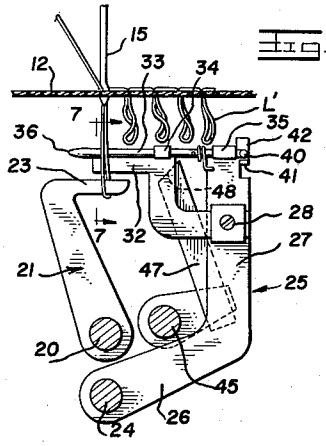


Fig. 7.

Fig. 4.



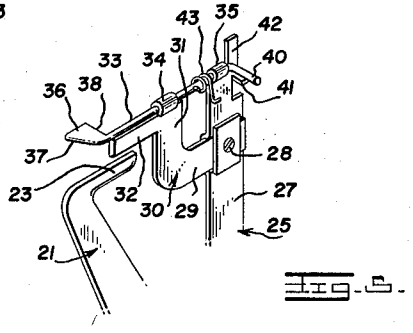


Fig. 5.

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METHOD OF AND APPARATUS FOR PRODUCING TUFTED PRODUCTS

Filed Aug. 21, 1959 2 Sheets-Sheet 2

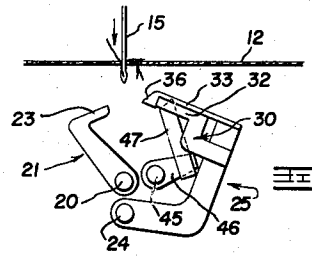


FIG. 8.

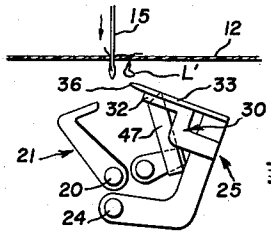


FIG. 14.

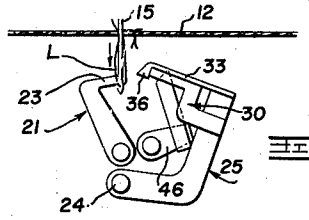


FIG. 9.

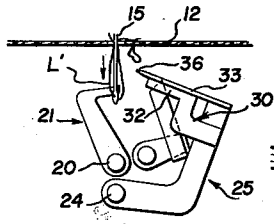


FIG. 15.

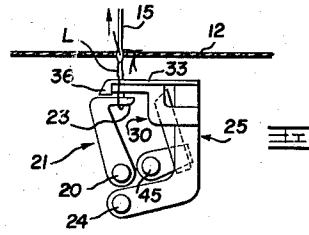


FIG. 10.

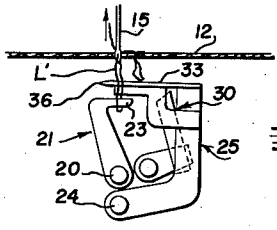


FIG. 16.

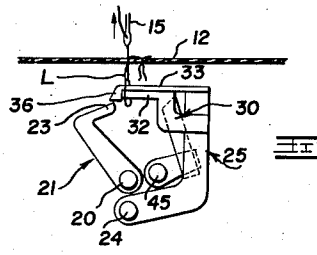


FIG. 11.

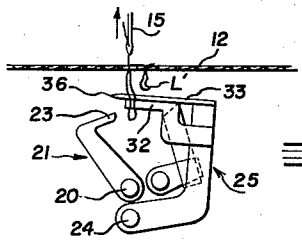


FIG. 17.

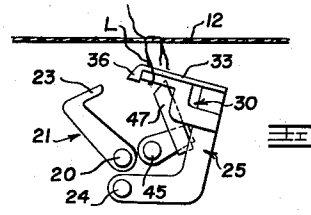


FIG. 12.

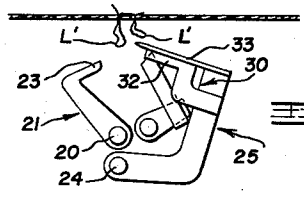


FIG. 18.

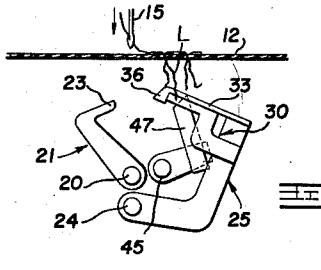


FIG. 13.

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2,982,240

METHOD OF AND APPARATUS FOR PRODUCING TUFTED PRODUCTS

Joseph Kelly McCutchen, J & C Bedspread Co., Ellijay, Ga.

Filed Aug. 21, 1959, Ser. No. 835,229

9 Claims. (Cl. 112—79)

This invention relates to a method of and apparatus for producing tufted products.

An object of the invention is to provide a tufting machine and method for producing severed and unsevered loops in the same row upon a fabric base.

A further and more specific object of the invention is to provide tufting mechanism including a loop-forming looper and a severing looper, and adjustable means associated with the severing looper and selectively operable to permit the severing looper to enter the loop formed by the forming looper or to prevent the severing looper from entering such loop.

A further object is to provide tufting mechanism which may be embodied in a single-needle or multiple-needle machine.

Other objects and advantages of the invention will become apparent during the course of the following detailed description.

In the accompanying drawings forming a part of this application and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a side elevation, partly diagrammatic, and partly in section, showing looper elements and associated parts of the tufting apparatus employed in the practice of the method.

Figure 2 is an enlarged fragmentary side elevation of the tufting apparatus, partly in section, and showing one operative position of the apparatus during the formation of severed loops upon a fabric base.

Figure 3 is a further view similar to Figure 2 showing the apparatus in a subsequent operative position during the formation of severed loops upon the fabric base.

Figure 4 is a further fragmentary side elevational view of the apparatus when conditioned to form unsevered loops upon the fabric base.

Figure 5 is a fragmentary perspective view of looper elements and associated parts.

Figure 6 is a fragmentary vertical section taken on line 6—6 of Figure 2.

Figure 7 is a similar view taken on line 7—7 of Figure 4.

Figures 8–13 inclusive are diagrammatic views of looper elements and associated parts of the apparatus, showing the steps of the method for forming severed loops upon the fabric base.

Figures 14–18 inclusive are similar diagrammatic views of the apparatus showing the steps of the method for forming unsevered loops upon the fabric base.

Figure 2*a* is an edge elevation of the tufting mechanism shown in Figure 2.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral **10** designates a horizontal support or top, included in a supporting frame **11** of a tufting machine.

A fabric base **12** travels upon the upper face of the top **10** and is intermittently fed to the right, Figure 1, as indicated by the arrows. The intermittent feed means for the fabric base **12** may include feed rollers **13** and

14, which are turned in the direction of the arrows by suitable means, not shown. This is the feed means shown in Patent 2,879,729 to J. K. McCutchen. The invention is not restricted to any particular form of fabric feed means, however, and I also contemplate using the conventional dog-feed means as shown in Patents 2,143,678 and 2,143,679 to Baggett et al. As should be obvious, the fabric base **12** is stationary when the needle descends and passes through the same to form a loop upon the looper, and the fabric is advanced a step when the needle is in the elevated position free of engagement with the fabric base.

The numeral **15** designates a needle of the tufting machine, carried by a vertical reciprocatory needle bar **16** mounted for reciprocation upon the vertical head **17** of the tufting machine. The numeral **18** designates the usual presser foot, Figure 1, carried by the presser-foot bar **19**. This construction is conventional and is shown substantially in the McCutchen Patent 2,879,729.

Arranged beneath the horizontal top **10** and substantially below the vertical reciprocatory needle **15** is a horizontal rock shaft **20**, which is driven by and suitably timed with the main drive shaft, not shown, of the tufting machine. Rigidly mounted upon the rock shaft **20** is a first or loop-forming looper **21**, including an upstanding arm **22** and a generally horizontal bill **23**, which extends in the direction of travel of the fabric base **12**. The horizontal bill **23** of looper **21** enters the loop as it is formed upon the fabric base **12** and the bill **23** does not have the usual down-turned hook at its free end, as shown in the drawings.

The numeral **24** designates a second rock shaft, spaced below the rock shaft **20** and parallel thereto and also adapted to be driven by and suitably timed with the main drive shaft of the tufting machine. Rigidly mounted upon the rock shaft **24** is a second or loop-severing looper **25**, including a generally L-shaped arm or crank **26** having an upstanding vertical portion **27**. Adjustably rigidly secured at **28** to the vertical arm portion **27** is the lower horizontal extension **29** of a looper element **30**, having a vertical neck portion **31** and a horizontal bill **32**.

As shown in the drawings, the looper element **30** carried by arm **26** is arranged in opposition to the looper **21**, and as shown in Figure 2, the horizontal bill **32** is positioned above the bill **23**, in closely spaced relation thereto during the operation of the apparatus. The bill **32** faces opposite to the direction of travel of the fabric base **12**. The looper element **30** and the looper **21** operate in the same vertical plane, as best shown in Figure 5. The bill **32** of the looper element **30** also lacks the usual down-turned hook at its free end, commonly employed on tufting machine loopers.

An auxiliary bill **33**, in the form of a rod circular in cross-section is mounted atop the looper bill **32** and extends longitudinally thereof and is journaled for rotation within bearings **34** and **35**, secured respectively to the looper element **30** and the top of the vertical arm **27**. At its leading end, and adjacent to the free end of the bill **32**, the auxiliary bill **33** has rigidly secured to it a combined loop-retaining and displacing element or hook **36**.

The element **36** has a leading edge **37** extending diagonally of the longitudinal axis of the auxiliary bill **33** and a rear or inner edge **38**, adjacent to the free end of the bill **32** and extending at right angles to the auxiliary bill **33**. The element **36** is swingable vertically by rotation of the auxiliary bill **33** within its bearings **34—35**. When the element **36** is positioned vertically as in Figure 2, its lower edge **39** projects below the looper bill **32** so that the element **36** then constitutes a hook or retaining element to retain loops upon the bill **32** for severing.

In Figure 2, the element 36 is disposed slightly above the horizontal bill 23 of looper 21 and directly forwardly of the horizontal bill 32. The bill 32 and the auxiliary bill 33 carrying the element 36 face in a direction opposite to the direction of travel of the fabric base 12, as shown.

The rear end of the rotary auxiliary bill 33 carries an integral transverse extension or crank 40 extending at right angles thereto, and engageable with horizontal and vertical stops 41 and 42, rigidly secured to the top of arm 27. The extension 40 is diametrically opposite the element 36 on the auxiliary bill 33, Figure 5, and extends beyond the side of the auxiliary bill remote from the element 36. The arrangement is such that when the crank 40 is swung downwardly into engagement with the horizontal stop 41, the element 36 is horizontally disposed and projects beyond corresponding sides of the bills 32 and 23, as best shown in Figure 5. When the crank 40 is swung upwardly and into contact with the vertical stop 42, Figure 2, the element 36 is arranged in a vertical plane and depends from the auxiliary bill 33 in advance of the bill 32 and directly above the bill 23.

A spring 43 attached to auxiliary bill 33 and engaging the arm 27 serves to normally hold the crank 40 in the upstanding vertical position, against the vertical stop 42. A flexible element or cable 44 secured to the crank 40 serves to swing the crank downwardly to the horizontal position, wherein the crank engages the horizontal stop 41. It may thus be seen that spring 43 serves normally to maintain the element 36 in the vertical depending position of Figure 2, and when the cable 44 is tensioned the element 36 will be swung upwardly to the horizontal position shown in Figures 4 and 5. While I have shown the cable 44 to move the element 36 to the horizontal or inactive position, the invention is in no sense restricted to this means, and the illustration in the drawings is for the purpose of explaining the operation of a single-needle mechanism employed in the practice of the method. I may also employ a multiple-needle machine with any preferred number of sets of the looper mechanisms shown in Figures 2 to 5, and where this is done, the cranks 40 of the auxiliary bills 33 may be turned automatically or controlled by suitable pattern mechanism, or by electronic control means, or the like.

With continued reference to the drawings, the numeral 45 designates a third horizontal rock shaft spaced from and parallel to the rock shafts 20 and 24, and driven by and in suitably-timed relation with the main drive shaft of the tufting machine. The rock shaft 45 carries a laterally extending arm 46 rigidly secured thereto, and having a cutter blade 47 rigidly secured thereto in a conventional manner. The cutter blade 47 has a top cutting edge 48 which slidably contacts one side face of the looper element 30. The cutting edge 48 is tensioned toward the adjacent side face of the looper element 30 by the inherent springiness of the cutter blade 47, as is conventional. The cutter blade 47 has a conventional shearing action with the lower edge 49 of looper bill 32 of the severing looper 25. This loop-severing arrangement is generally conventional, and is shown in United States Patents 2,143,678 and 2,143,679, to Baggett et al.

The rock shafts 20, 24 and 45 are turned in suitably timed order by the main drive shaft of the tufting machine, so that the loopers 21 and 25 and the cutter blade 47 will reciprocate in proper timed relationship with the rise and fall of the needle 15 and the intermittent feed of the fabric base 12. The timing means for the elements is conventional and well known in the art, and need not be described herein. The looper element 30 is bodily carried by the reciprocatory arm 26 and moves therewith as the rock shaft 24 turns upon its axis. The rock shaft 45 imparts to the cutter blade 47 the proper oscillatory movement to effect the severing of loops by the coaction of the cutting edge 48 and the bill 32 in a well known manner. The reciprocatory needle 15 passes close to one side of the looper bill 23 when the needle is in the lowermost position.

The operation of the tufting mechanism during the practice of the method is as follows:

With continued reference to the drawings, particularly diagrammatic Figures 8 through 18, the method steps are as follows: When it is desired to produce severed loops in a row upon the fabric base 12, tension on the cable 44 is relaxed, and the spring 43 maintains the crank 40 in the vertical position against the vertical stop 42, and the element 36 is held in the vertical depending position shown in Figure 2 and in all diagrammatic Figures 8 through 13.

The needle 15 descends and passes the yarn through the fabric base 12, Figure 8, and the loopers 21 and 25 are now separated a maximum distance and are at the outer end of their travel. When the needle 15 has reached the bottom of its down-stroke or has just begun to move up slightly, Figure 9, the bill 23 of loop-forming looper 21 enters the loop L close to one side of the needle, and the loop L is now relaxed and open to receive the bill 23, because the needle is just beginning to move upwardly, and the tension in the yarn forming loop L is relaxed. At this same time, Figure 9, the severing looper 25 is also beginning to travel toward the moving looper 21. The cutter blade 47 remains in the inactive position.

With reference to Figure 10, while the needle 15 continues to move upwardly, the looper bill 23 moves entirely into the loop L. The severing looper 25 has now moved to the position shown in Figure 10, and the looper bill 32, auxiliary bill 33 and vertically-disposed element 36 all enter the loop L, close to the top of the bill 23 and in the same vertical plane with the latter. The cutter blade 47 remains in the inactive position.

When the needle reaches the top of its up-stroke, Figure 11, the loop-forming looper 21 has moved rearwardly and the bill 23 without a hook is withdrawn from the loop L, and such loop is now transferred to the bill 23 as shown in Figure 11. The cutter blade 47 remains in the inactive position.

The severing looper 25, Figure 12, now begins to move outwardly or away from the looper 21, and the fabric base 12 is fed a step to the right while the needle 15 is disengaged from the fabric base. The extent of outward movement of the looper 25 is such that the loop L tends to move off of the bill 32, but the down-turned element 36 now serves as a hook or retaining element to prevent the loop L from escaping from the bill 32 as shown in diagrammatic Figure 12. The vertical edge 38 of the element 36 is in the path of travel of the loop L to prevent the same from passing off of the free end of the bill 32. As shown in Figure 12, the cutter blade 47 has now begun to move toward its active or loop-severing position.

With reference to Figure 13, the loop-severing looper 25 is now at or near the limit of its outward movement and the needle 15 is again beginning to move downwardly. The looper 21 is also at or near its outermost position. The cutter blade 47 now moves to the active position, wherein the cutting edge 48 severs the loop L against the lower edge of the bill 32 in the conventional manner. When this occurs, the tufting mechanism returns to the condition shown in Figure 8 and the cutter blade 47 returns toward the inactive position and the needle 15 continues to move downwardly to form a new loop by coaction with the looper bill 23, Figure 9, in the manner previously described. This mode of operation of the mechanism during the practice of the method may be continuous for any desired length of time, to form as many severed loops or tufts in a row on the fabric base 12 as desired.

When it is desired to produce unsevered loops or tufts upon the fabric base 12 as shown diagrammatically in Figures 14 through 18, the cable 44 is placed under tension and the crank 40 is swung to the horizontal position in contact with the horizontal stop 41, Figure 5. This po-

sitions the element 36 horizontally above the looper bill 32 and laterally outwardly thereof. The element 36 remains in this position, Figure 5, throughout the formation of the desired number of unsevered loops in a row upon the fabric base 12.

With reference to Figure 14, the elements of the tufting mechanism are in the same relative positions previously described in connection with Figure 8, except that the element 36 is in the lateral or horizontal position shown in Figure 5. In Figure 15, the looper bill 23 enters the loop L', which loop is formed by the coaction between the needle 15 and the looper bill 23 as previously described. In Figure 16, the looper bill 23 has moved completely into the loop L' and the severing looper 25 has reached the position where the bill 32 and auxiliary bill 33 would normally enter the loop L' as described in connection with Figure 10. However, due to the horizontal position of the element 36, Figure 5, the bill 32 and auxiliary bill 33 cannot enter the loop L' when the parts reach their relative position shown in Figure 16.

The reason for this is that the leading horizontal diagonal edge 37 of the element 36 contacts the vertical sides of the loop L', in advance of the bill 32 and sweeps the loop L' to the side, Figures 7 and 4, so that the bill 32 and the auxiliary bill 33 directly above it do not enter the loop L', but instead, pass to one side of the loop as shown in Figure 7. The loop L', however, remains upon the looper bill 23 at this time, as shown in Figure 16.

When the looper 21 moves outwardly as shown in Figure 17, its bill 23 without a hook disengages or moves out of the loop L', and the loop L' is now freed entirely from the mechanism since it never received the looper bill 32 or auxiliary bill 33 with element 36.

It may now be seen that during the above described formation of unsevered loops upon the fabric base 12, the element 36 functions as a loop-displacing or pushing element, which sweeps the loop to one side and prevents the looper bill 32 from entering it. The parts now move to their relative positions shown in Figure 18, which corresponds to Figure 13, and while the cutter blade 47 moves automatically to the severing or active position relative to the bill 32, no severing takes place because the loop L' was never transferred by the mechanism to the bill 32 or auxiliary bill 33. Once the loop L' slides off of the bill 23, Figure 17, the tension in the yarn forming the loop is relaxed and the loop springs upwardly toward the fabric base 12 as shown in Figure 18. This maintains the unsevered loops L' upon the fabric base far enough above the looper mechanism, so that the looper bills can never reenter the unsevered loops as the fabric base continues its intermittent movement to the right.

The above cycle of operation in connection with Figures 14 to 18 may repeat itself continuously for any desired length of time during which it is desired to form unsevered loops in a row upon the fabric base. When it is desired to again form severed loops in the same row upon the fabric base, it is merely necessary to relax the tension on the cable 44 and allow the spring 43 to return the element 36 to its normal vertical depending position shown in Figure 2 and in Figures 8 through 13. By manipulating the cable 44 or through the operation of suitable pattern control mechanism well known in the art, the element 36 may be positioned at will to coact with the remainder of the mechanism to produce either severed or unsevered loops upon the fabric base 12 in the same row and in the desired sequence.

While I have described the method of producing severed or unsevered loops upon the fabric base in terms of a single-needle mechanism, it should be obvious that the same method may be practiced by means of a multiple-needle mechanism. When this is done, the desired severed and unsevered loops may be formed simultaneously in any desired number of spaced rows upon the fabric base 12.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts, as well as changes in the order or sequence of method steps may be resorted to, without departing from the spirit of the invention or scope of the subjoined claims.

Having thus described my invention I claim:

1. In a tufting machine, a work support, means to feed a fabric base intermittently over the work support, a reciprocatory needle to sew loops in the fabric base, a loop-forming looper including a bill to enter the loops sewn in the fabric base, means to reciprocate said looper, a loop-severing looper arranged in opposition to the loop-forming looper and including a bill to enter the loops with the bill of the loop-forming looper, means to reciprocate the loop-severing looper, and auxiliary bill mounted for rotation near the bill of the loop-severing looper and having a crank part, a loop-retaining and displacing element carried by the forward end of the auxiliary bill adjacent the free end of the bill of the loop-severing looper and having a diagonal leading edge, said element adapted to extend vertically below the bill of the loop-severing looper in one adjusted position, and also adapted to extend laterally of the bill of the loop-severing looper in another adjusted position, control means for the auxiliary bill to rotate the same in opposite directions upon its longitudinal axis, and movable cutter means associated with the loop-severing looper and operable to sever the loops upon the bill of the loop-severing looper when said element is positioned vertically to retain said loops upon the bill of the loop-severing looper.

2. In a tufting machine, a work support, fabric feed means, a reciprocatory needle to sew loops into a fabric base, a first looper arranged near the work support and needle and including a bill to enter the loops as they are formed in the fabric base, means to reciprocate the first looper in timed relation with the reciprocation of the needle, a second looper arranged in opposition to the first looper and having a bill to enter the loops already engaged upon the bill of the first looper, means to reciprocate the second looper, selectively controlled means carried by the second looper and including an element adapted to be positioned vertically to enter the loops with the bill of the second looper or to be positioned horizontally to shift the loops aside and thereby prevent entry of said element and bill of the second looper into the loops while the latter are engaged upon the bill of the first looper, a cutter blade for coaction with the bill of the second looper to sever loops thereon, and means to reciprocate the cutter blade in timed relation with the first and second loopers and said needle.

3. A method of producing severed and unsevered loops in a row upon a fabric base, comprising the steps of forming in succession a plurality of loops upon the fabric base and applying each loop when formed to a first reciprocatory looper element, transferring each loop in succession from the first looper element to a second reciprocatory looper element and holding the transferred loops upon the second looper element, severing the loops upon the second looper element while the loops are held thereon to provide severed loops upon the fabric base, forming in succession a further plurality of loops upon the fabric base and applying each of the last-named loops when formed to said first looper element, displacing each loop on the first looper element to one side above the first looper element to thereby prevent transferring of the loop from the first looper element to the second looper element, and removing each loop in succession from the first looper element to provide unsevered loops upon the fabric base.

4. In a tufing machine, a work support, means to feed a fabric base intermittently over the work support in one direction, a reciprocatory needle to sew loops into the

fabric base, a first looper arranged below the work support and needle and having a bill facing in the direction of travel of the fabric base to enter the loops as they are formed in the fabric base, means to reciprocate the first looper in timed relation with the reciprocation of the needle, a second looper arranged opposite the first looper and having a bill facing opposite to the direction of travel of the fabric base to also enter the loops formed in the fabric base, means to reciproate the second looper, a movable element carried by the second looper and having a diagonal part to engage loops upon the first looper and push such loops to one side so that the second looper will not enter the loops upon the first looper when said movable element is in the active position, said movable element having an inactive position relative to the second looper to allow the second looper to enter the loops upon the first looper, said movable element then serving as a hook to retain loops upon the second looper and to effect transfer of the loops from the first looper to the second looper during reciprocation of the loopers, means to shift said movable element from the inactive to the active position, and means coacting with the second looper to sever loops thereon.

5. In a tufting machine, a work support, fabric feed means, a reciprocatory needle to sew loops into a fabric base, a first looper arranged near the work support and needle and including a bill to enter the loops as they are formed in the fabric base, means to reciprocate the first looper in timed relation with the needle, a second looper arranged opposite to the first looper and having a bill to enter the loops upon the fabric base while said loops are engaging the first looper, means to reciprocate the second looper in timed relation with the needle and first looper, and a movable element carried by the second looper and having active and inactive positions relative to the second looper and adapted when in the active position to enter the loops with the second looper, said element being unable to enter the loops with said second looper when arranged in the inactive position, means to move said element from the active to the inactive position and vice-versa, and cutter means associated with the second looper to sever loops thereon while said element is in the active position.

6. In a tufting machine, a work support, means to feed a fabric base intermittently over the work support, a reciprocatory needle to sew loops in the fabric base while the latter is stationary relative to the work support, a first reciprocatory needle arranged below the fabric base and work support and having a bill extending in the direction of feed of the fabric base and adapted to enter the loops as they are formed in the fabric base by the needle, a second reciprocatory looper arranged in opposition to the first looper and having a bill extending in a direction opposite to the direction of feed of the fabric base, said bill of the second looper adapted to enter the loops while they are engaged upon the bill of the first looper, a movable element associated with the second looper and including a loop engaging part positioned near the bill of the second looper, said element and loop engaging part having active and inactive positions relative to the bill of the second looper, the loop engaging part adapted to enter the loops with the bill of the second looper while in the active position to thereby transfer loops from the bill of the first looper to the bill of the second looper and to subsequently retain such loops upon the bill of the second looper for severing, said loop engaging part when in the inactive position being unable to engage the loops upon the bill of the first looper with the bill of the second looper and thereby not retaining loops upon the bill of the second looper, means to shift said element and part to and from the active and inactive positions, and means to sever loops upon the bill of the second looper when said element and part are in said active position.

7. In a tufting machine, a work support, means to feed a fabric base intermittently over the work support, a reciprocatory needle to sew loops into the fabric base, a first reciprocatory looper arranged near the work support and needle and having a bill to enter the loops formed upon the fabric base, a second reciprocatory looper arranged in opposition to the first looper and having a bill to enter the loops formed upon the fabric base while said loops are engaged by the bill of the first looper, a reciprocatory element carried by the second looper and having active and inactive positions relative to the bill of the second looper and adapted when in the active position to enter the loops with the bill of the second looper, said element when in the inactive position being unable to enter the loops, means to reciprocate the element to and from the active and inactive positions, and means to sever the loops upon the bill of the second looper while said element is in said active position.

8. A method of producing severed and unsevered loops upon a fabric base, comprising the steps of forming in succession a row of loops upon the fabric base and applying each loop in the row when formed to the bill of a first looper, transferring each loop in the row in succession from the bill of the first looper to the bill of a second looper and retaining each transferred loop upon the bill of the second looper, and then severing each loop in succession while the latter is upon the bill of the second looper to provide severed loops upon the fabric base, forming in succession in the same row additional loops upon the fabric base and applying each such loop when formed to the bill of said first looper, moving the first and second loopers relatively in the manner to normally effect said transfer of loops from the bill of the first looper to the bill of the second looper but engaging the loops upon the bill of the first looper during said transfer movement of the loopers to push aside the loops upon the bill of the first looper and thereby preventing their transfer to the bill of the second looper, and then removing in succession each loop from the bill of the first looper to provide unsevered loops upon the fabric base.

9. A method of producing severed and unsevered loops upon a fabric base, comprising forming a plurality of loops upon the fabric base and applying each loop when formed to the bill of a first looper, transferring each loop in succession from the bill of the first looper to the bill of a second looper and retaining each transferred loop upon the bill of the second looper and severing each transferred loop upon the bill of the second looper, forming a further plurality of loops upon the fabric base and applying each such loop when formed to the bill of said first looper, moving the first and second loopers relative to each other in the manner which normally transfers loops from the bill of the first looper to the bill of the second looper, substantially simultaneously deflecting laterally each loop upon the bill of the first looper to push the loop out of alignment with the bill of the second looper and thereby preventing transferring of the loop to the bill of the second looper, and then removing in succession each loop from the bill of the first looper to provide unsevered loops upon the fabric base.

References Cited in the file of this patent

UNITED STATES PATENTS

2,879,728	McCutchen	Mar. 31, 1959
2,879,729	McCutchen	Mar. 31, 1959
2,882,845	Hoeselbarth	Apr. 21, 1959