Dec. 29, 1959 O. J. PARK ET AL 2,918,944

METHOD OF WEAVING HIGH PILE FABRIC

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FIG. 1

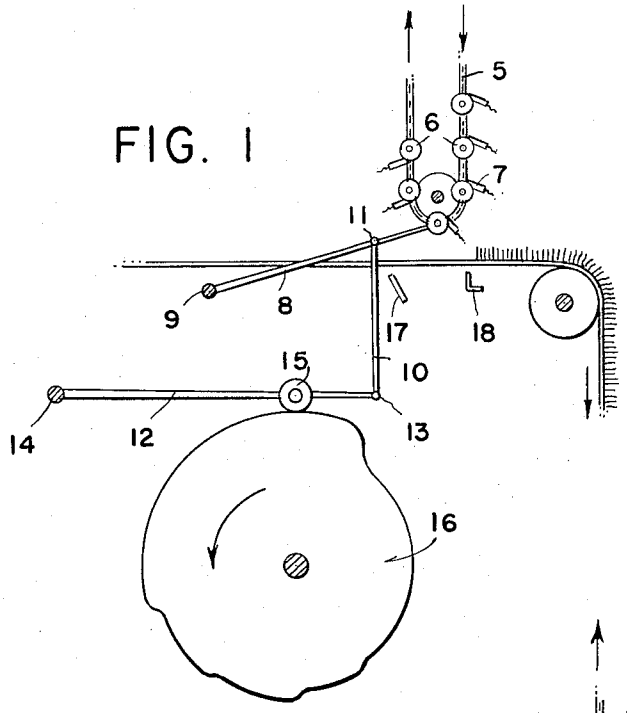
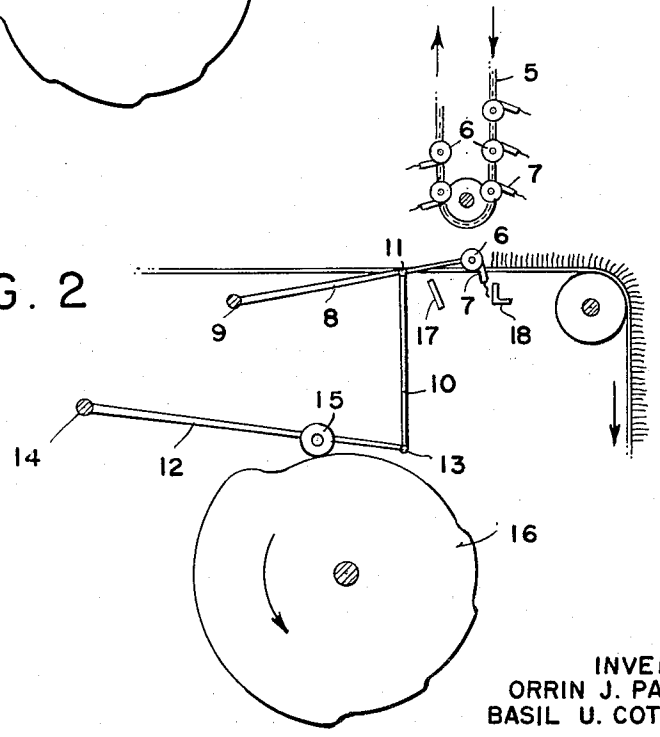


FIG. 2



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FIG. 3

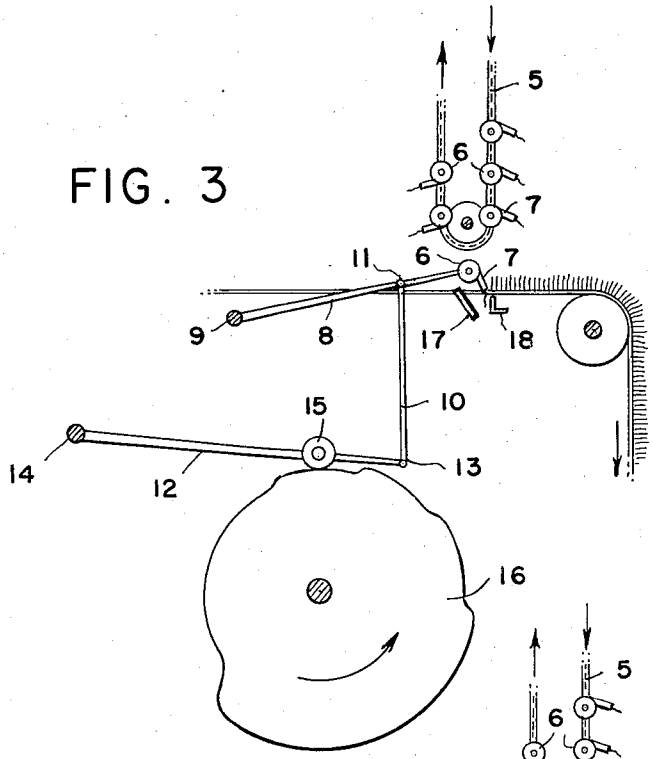
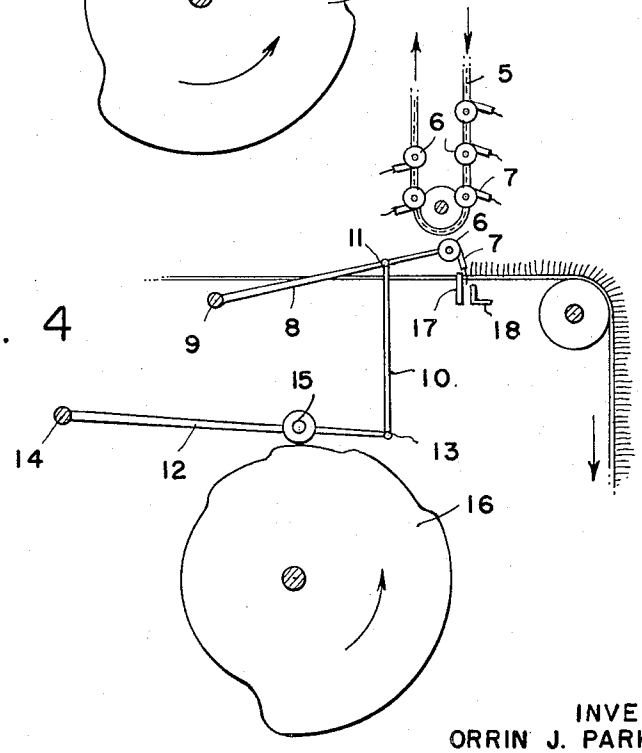


FIG. 4



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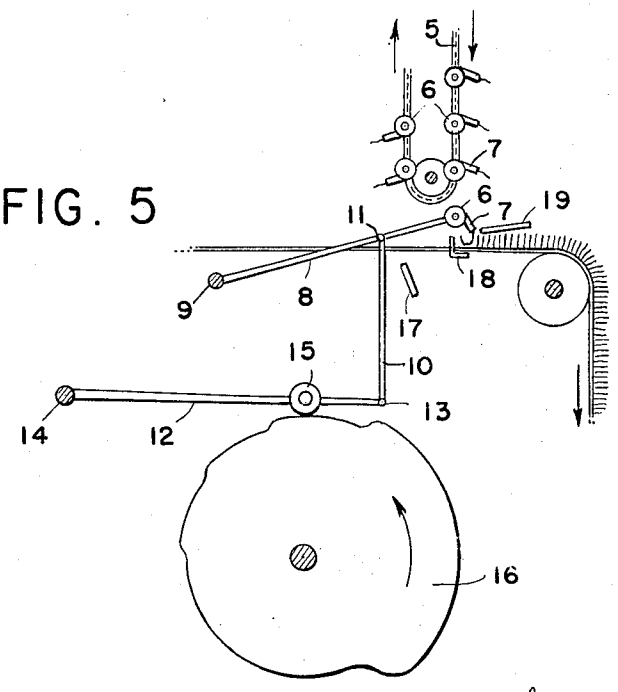
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FIG. 5



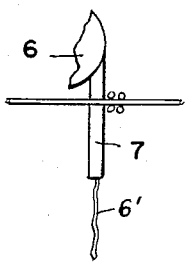


FIG. 6

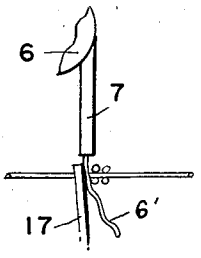


FIG. 7

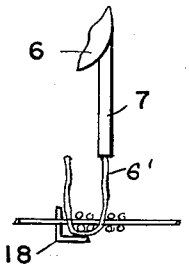


FIG. 8

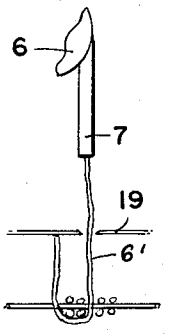
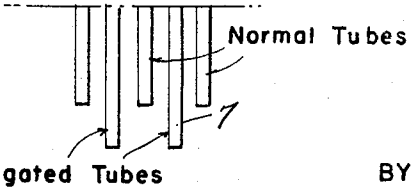


FIG. 9

FIG. 10



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METHOD OF WEAVING HIGH PILE FABRIC

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Application February 7, 1956, Serial No. 564,028

1 Claim. (Cl. 139—7)

This invention relates to improvements in Axminster looms and method of weaving a high pile fabric on such looms.

It is an object of the invention to provide the tube frames of an Axminster loom with tubes of extra long length for passing extra long protruding portions of the tuft yarns carried by the tubes through and below the chain warps, then initially drawing-off a portion of a tuft length while holding the tuft yarns with the reed and then drawing-off another portion of a tuft length while holding the tuft yarns with the comb.

In practice, the loom of the Axminster type is modified by providing tube frames with tubes of extra long length for holding the tuft yarns, increasing the height of the toothed comb and raising the cutting knives to allow for the increase in the tuft height. The motions of the reed, comb and cutting knives are substantially the same as a conventional Axminster loom but the motion of the tube frame varies in that it has a double draw-off action instead of a continuous draw-off action.

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

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

Figs. 1, 2, 3, 4 and 5 are positional views of the various parts of the loom during the steps of weaving,

Figs. 6, 7, 8 and 9 are enlarged detail views of the tube frame showing its position during the steps of weaving, and,

Fig. 10 is a front elevational view of the tube frame showing the comparison between the length of a normal tube and the extra length tube forming a part of this invention.

Referring to the drawings, the numeral **5** denotes the conventional carrier chain for the tube frames **6** of an Axminster loom. The tube frames support the spools of tuft yarns and depending from the frames are a series of tubes **7** which are of greater length than the length of the tubes heretofore employed. The length of the normal tube is approximately one and one-quarter inches whereas the length of the tubes **7** are approximately one and nine-sixteenths inches. The tuft yarns **6'** are threaded through the tubes **7** with a portion extending beyond the end of the tube which is slightly greater in length than the length of one leg of the tuft to be woven. For instance, if the tuft leg is to be one inch high the length of the protruding portion of yarn will be about one and one-quarter inches. The increase in the length of the tubes is necessary in order to pass the full length of the extended portion of the tuft yarn past the weft threads when the tube frame is moved downwardly to carry the tubes through the chain warps, as shown in Fig. 2. The tube frame is moved downwardly and upwardly by a lever **8** pivotally mounted at **9** which is operated by a connecting rod **10** pivotally connected at one end to the lever as at **11**, and having its opposite end pivotally connected to the end of rocker arm **12**, as at **13**. The rocker arm **12** is pivotally mounted on shaft **14** and supports a cam roller **15** riding upon the peripheral face of the cam wheel **16** which imparts the desired motion to the tube frame upon each cycle of operation.

In the position shown in Fig. 1 the tube frame **6** is in its uppermost position and as the cam wheel **16** turns counter-clockwise, the tube frame **6** is lowered to the position shown in Figs. 2 and 6, thereby passing the extended portions of the tuft yarns through and below the level of the chain warps, so that the extended ends depend from the ends of the tubes **7**. After passing the extended portions of the tuft yarns through the warps, the tube frame is slightly elevated to clear the tubes from the path of movement of the reed **17**, as the reed moves forward. As shown in Figs. 4 and 7, the reed binds the tuft yarns against the weft while the first draw-off motion is imparted to the tube frame. After the first draw-off motion, the reed **17** moves rearwardly and the comb **18** moves rearward into engagement with the portions of tuft yarns extending from the tubes, as shown in Figs. **5** and 8. As the comb **18** moves rearward it also moves upwardly around the weft threads inserted by the usual needle. The comb binds the tuft yarns against the weft threads and while holding the tuft yarns motion is imparted to the tube frame to provide a second draw-off of tuft yarns, Fig. 9, before the yarns are cut by the action of the cutting blades **19** which are positioned at a height corresponding to the increased height of the tufts.

In operation, the elongated tubes **7** of the tube frame **6** will carry the extra long protruding portions of the yarns **6'** through the chain warps and below the wefts, so that the yarns are freely suspended from the tubes, as shown in Fig. 6. As the reed **17** moves forward the tube frame is elevated to allow the reed to bind the yarns **6'** against the wefts, as shown in Fig. 7. With the yarns held tightly by the reed the first draw-off motion is imparted to the tube frame to draw-off sufficient yarn to form one leg of the tuft. As the reed moves rearwardly, the comb **18** moves rearwardly and upwardly bending the free ends of the yarns **6'** around the wefts inserted by the usual needle, as shown in Fig. 8. With the yarns held tightly by the comb the second draw-off motion is imparted to the tube frame to draw-off additional yarn, as shown in Fig. 9 and then the yarns are cut by the cutter blades **19** and the tube frames are returned to the carrier chain. By successive draw-off motions the desired amount of yarn is drawn from the spools to form a high pile without changing the timing operations of the loom.

It is to be understood that the form of our invention herein shown and described is to be considered a preferred example of the same and changes in the shape, size and arrangement of the parts may be made without departing from the spirit of the invention or scope of the claim.

Having thus described our invention, we claim:

The method of weaving a high tufted pile fabric on an Axminster loom which consists in lowering a tube frame carrying spools of yarn with relatively long yarn ends extending from the ends of the tubes to carry the yarn ends through and below the warps for a distance greater than the length of the free yarn ends, binding the free ends of the yarns against a shot of weft while lifting the tube frame to draw-off a length of yarn from the spools and then turning the free ends of yarn about a shot of weft and holding the ends against movement while lifting the tube frame a second time to draw-off a further length of yarn from the spools to provide the long yarn ends for the next cycle.

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