

March 1, 1932.

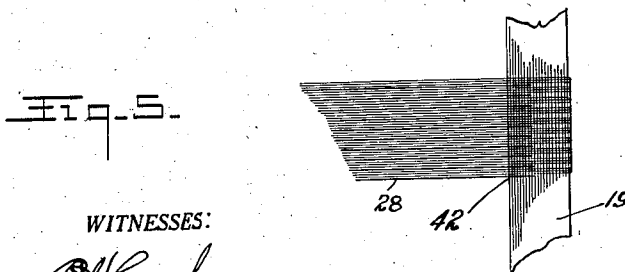
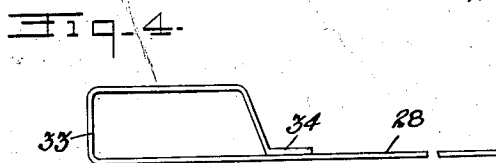
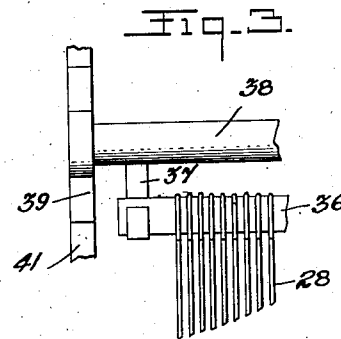
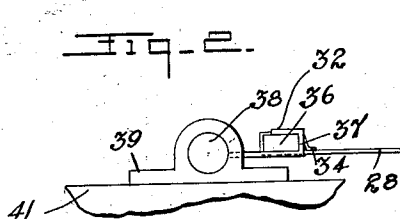
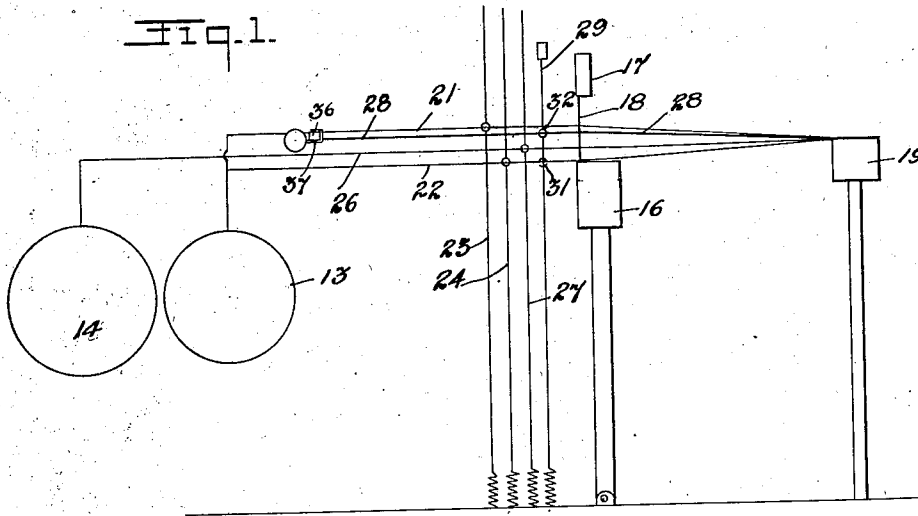
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1,848,069

PROCESS OF AND GAUGE FOR WEAVING PILE FABRICS

Filed Oct. 14, 1931

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 7.

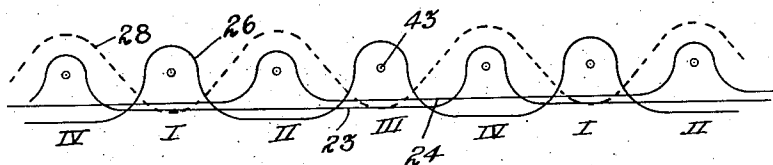


Fig. 8.

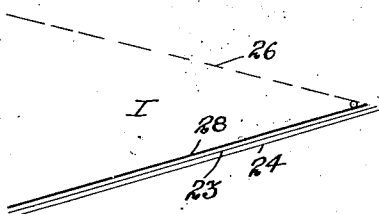


Fig. 9.

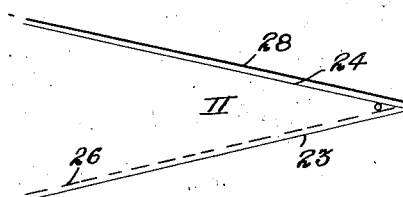


Fig. 10.

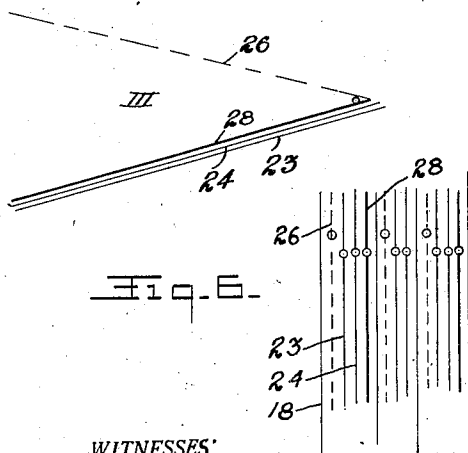


Fig. 11.

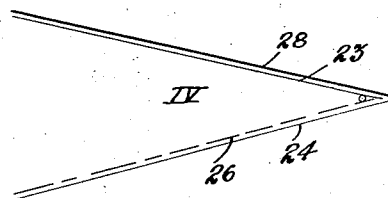
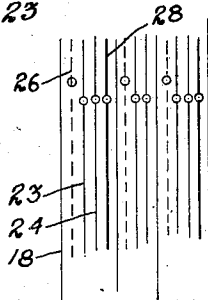


Fig. 6.



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UNITED STATES PATENT OFFICE

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PROCESS OF AND GAUGE FOR WEAVING PILE FABRICS

Application filed October 14, 1931. Serial No. 568,691.

This invention relates to the weaving of pile fabric, and particularly to the weaving of friezette cloth, which is uncut pile loop material.

In the manufacture of pile fabrics, gauges have been used for holding the pile loops during the weaving process, and these gauges are formed of flat metal of such thickness as to extend through the reed splits without disturbing the warp threads, which likewise extend therethrough.

These conventional gauges are operated by heddles so that their joint construction provides for the passing of the pile thread either above or below the gauge. On account of the extreme thinness of these gauges, they must, in order to provide proper stability for the pile loops, be of considerable height, otherwise the pull of the pile thread will cause the same to flop sideways and therefore lose their effectiveness to form proper pile loops.

It follows therefore that with the use of these gauges the pile loops are of very considerable height above the webbing or backing warp of the fabric.

In order to provide lower pile loops, string or cord has been used as a gauge, but the cord very quickly wears out between the shed and the fell of the cloth, so that when cord is employed, the cord gauges must be wound onto a drum or beam, and as the outer ends become worn, they must be removed and the beam rotated to feed out a new end.

The cord gauges are unsatisfactory in many respects and do not give the evenness of appearance to the loops that is provided by metallic gauges.

The object of the present invention is to provide an improved gauge for weaving pile fabric.

A further object of the invention is to provide a gauge for weaving low looped pile fabric.

Still a further object of the invention is to provide a gauge which will provide a greater number of loops per inch than with the use of the conventional metallic gauges and will give a more uniform and pleasing

effect than with pile fabric woven with cord gauges.

A still further object of the invention is to provide gauges of such calibre as to dislocate or roll multiple pile threads so as to produce a mottled pile fabric.

According to the invention the gauges are made from flexible piano wire fixedly secured at their inner ends and extended through heddles for raising and lowering the same at the shed.

The drawings illustrate an embodiment of the invention and the views therein are as follows:

Figure 1 is a diagrammatic view showing the arrangement of the heddles for the loom.

Figures 2 and 3 are fragmentary side and top plan views, respectively, showing the manner of fixedly connecting the wire gauges at their inner ends.

Figure 4 is a side view of one of the gauge wires broken away.

Figure 5 is a fragmentary view showing the inner ends of the wire gauges extending into the fell of the woven fabric.

Figure 6 is a diagrammatic view showing the positions of the backing warp threads, the pile warp thread, and the pile wire extending through the reed splits.

Figure 7 is a diagrammatic view showing the weave, and

Figures 8, 9, 10 and 11 are diagrammatic views showing the shed in the four picks constituting a cycle of operation of the loom.

In the diagrammatic view shown in Figure 1, let 13 represent the backing warp beam and 14 the pile beam, 16 the loom lay carrying the hand rail 17, and between which is the reed 18. 19 represents the breast beam.

The backing warps 21 and 22 are represented as being carried by the heddles 23 and 24, the pile warp 26 by the heddle 27, and the gauge wire 28 by the heddle 29.

The gauge heddle lowers all the gauge wires to the position shown by the dotted circle 31, or raises them all to the position shown by the full circle 32 at each pick.

The gauge wires 28 form a square end (see Figure 4) with the end 34 preferably welded. These square portions are slipped

onto a band 36 which is held by hooks 37 extending out from a shaft 38, which is supported in a bracket 39 on the loom frame 41. (See Figures 2 and 3.)

5 The front end of these gauges extend into the fell of the fabric 42, as shown in Figure 5, in a manner similar to the ends of the flat metallic conventional gauges.

10 In Figure 7, which is a diagrammatic and for the purpose of illustration only, the weave of the fabric may be seen, the dotted line representing the gauge 28.

15 In this view it will be seen that the backing warps 21 and 22 change their positions in the shed every fourth pick, while the pile warp 26 alternates above and below the weft thread 43 so that when the said pile warp extends over the said weft or filling thread, the gauge wire 28 is lowered, and vice versa.

20 This is clearly shown in Figures 8, 9, 10 and 11 where the pick numberings have been made to correspond with the diagrammatic view Figure 7.

25 In pick I of the cycle, the pile threads 26, which in these views have been shown in dotted lines, are raised, while the gauges 28 and the backing threads 21 and 22 are both lowered.

30 In pick II, the gauge wires 28 are raised, the pile thread 26 lowered, and the backing warp 22 raised.

35 In pick III the pile threads 26 are again raised, the gauge wires 28 lowered, and the backing warp 22 lowered, while in pick IV the gauge wires 28 are again raised, the pile threads 26 lowered, and the backing warp 21 also lowered.

40 Figure 6 illustrates the manner of crowding the pile threads in the reed split. The reed wires are designated by the numeral 18, the backing warp by the numerals 21 and 22, the pile warp by the numeral 26, and the gauge wires by the numeral 28.

45 There is a gauge wire in every other reed split. The gauge wire is of much greater calibre than the calibre of the conventional gauge, so that there is a crowding of the pile threads in the splits, so that where three or more colors are used to form a pile thread 50 26, they are, by the operation of the gauge wire heddle 29, and by the operation of their heddle 27, twisted as they rise and fall to form the shed so that the resulting effect 55 produced upon the finished material is a random mottling, without any regard as to pattern.

60 The invention produces a resulting fabric which can not be produced by the conventional flat gauges and one which cannot be produced by the string or cord gauges in a uniform manner, and without the constant renewal of the gauge portions thereof.

65 The invention has been in practical and commercial use sufficient time to demonstrate

its superiority over the gauges used for this class of work at the present time.

Of course, the gauge illustrated and the manner of forming the pile fabric may be modified and changed in various ways without departing from the invention herein set forth and hereafter claimed. 70

The invention is hereby claimed as follows:

1. The combination with a loom embodying a reed and shedding mechanisms for weaving a backing fabric from warp and weft threads, of resilient wires anchored at the back of the loom and extending through the reed and the shedding mechanism parallel with the warp threads, and a heddle for friezette loop threads, adapted to move said loop threads in vertical planes parallel with said wires, said wires substantially filling transversely the splits in the reed whereby said loop threads in passing said wires have imparted thereto a local random twist. 75 80 85

2. The process of weaving an uncut warp loop friezette fabric, consisting in employing a pile thread of several differently colored strands, passing said pile thread through splits of a reed as a unit and through a shedding mechanism, obstructing some of said splits of the reed, shedding the threads and obstructions relative to each other so that the threads are twisted locally and at random in passing said obstructions and employing weft threads to maintain such random condition. 90 95

3. The process of weaving an uncut warp loop friezette fabric, consisting in employing a pile thread of several differently colored strands, passing said pile thread through splits of a reed as a unit and through a shedding mechanism, maintaining parallel anchored wires extending through some of said splits of the reed, shedding the pile threads and wires relative to each other so that the threads are twisted locally and at random, in passing said wires and employing weft threads to maintain such random condition. 100 105 110

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

ETHAN A. WILSON.

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