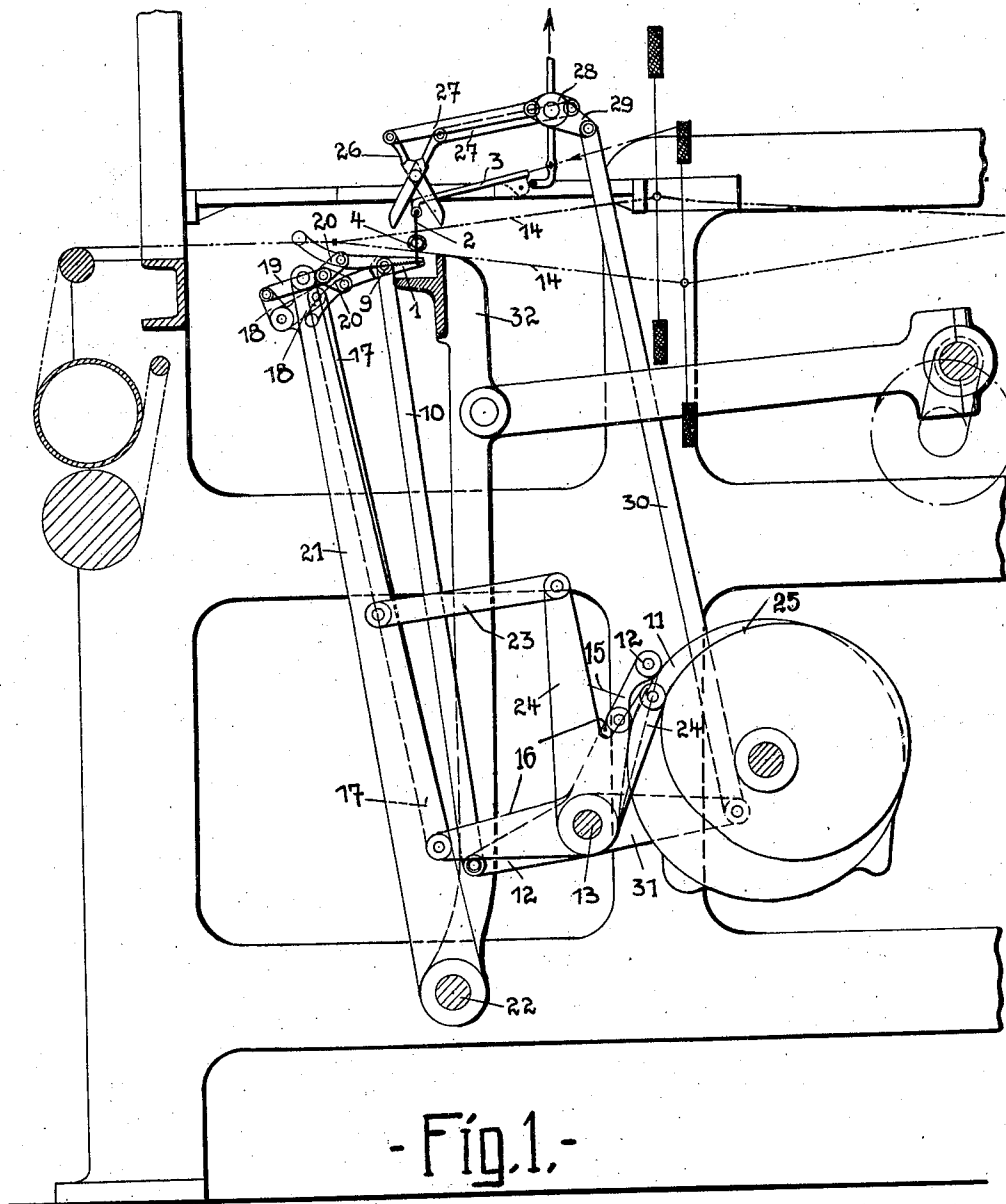


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PROCESS OF PICKING THE WEFT THREADS IN LOOMS
FOR WEAVING PREPARATORY CHENILLES
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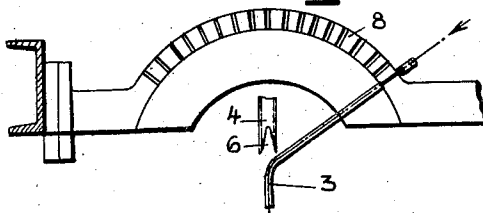
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- Fig.1.-

- Fig. 2:-



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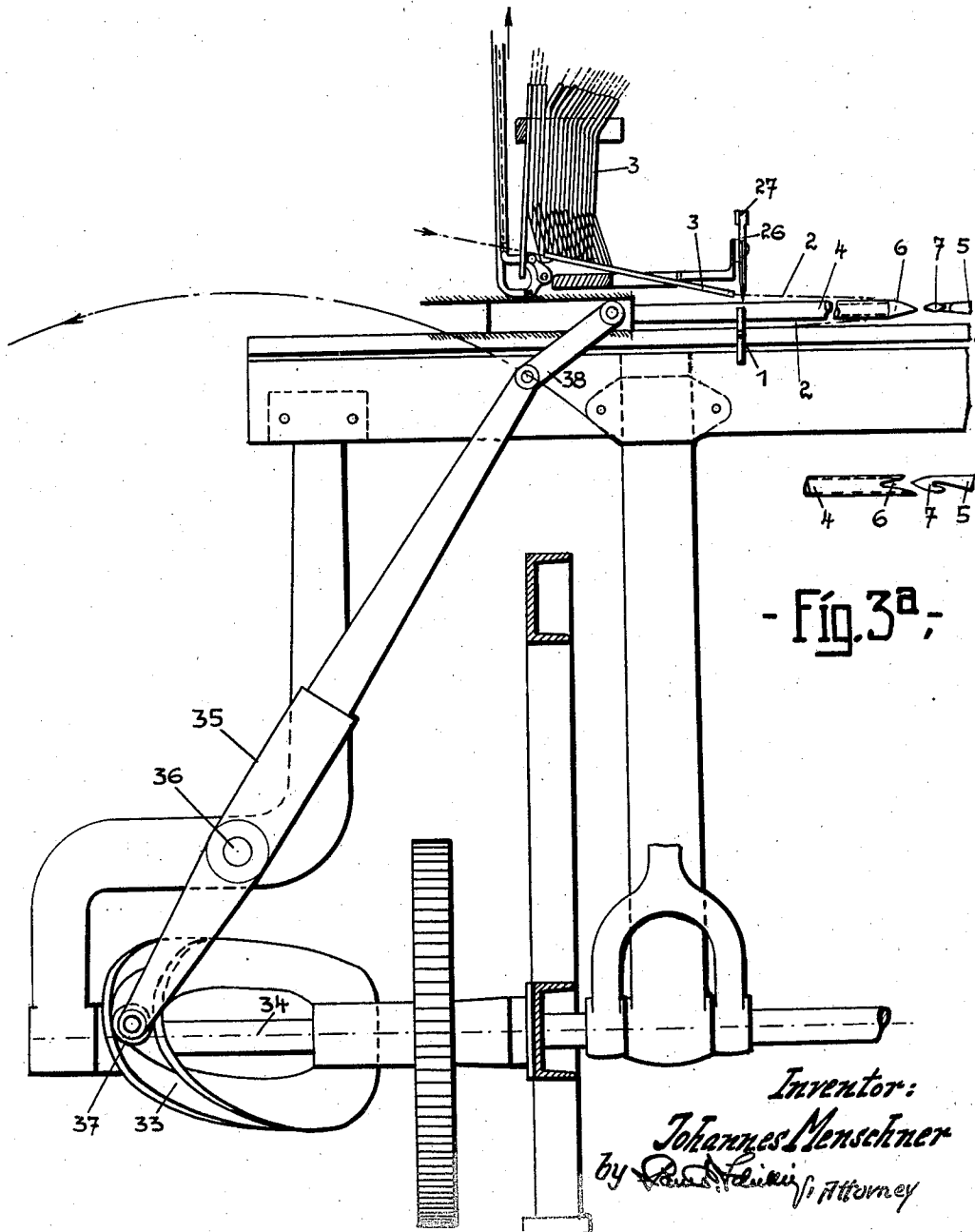
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- Fig. 3:-

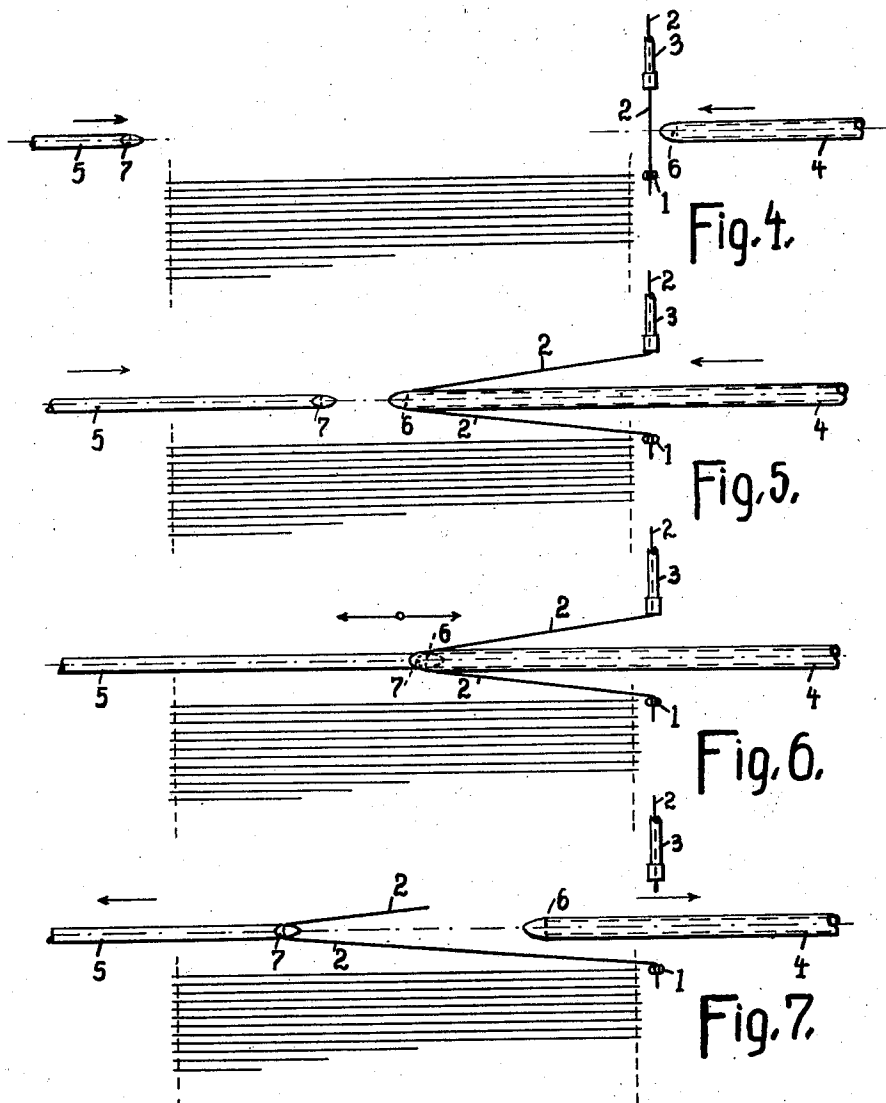


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UNITED STATES PATENT OFFICE

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PROCESS OF PICKING THE WEFT THREADS IN LOOMS FOR WEAVING PREPARATORY CHENILLES

Application filed October 4, 1929. Serial No. 397,188, and in Germany January 14, 1928.

This is a process of picking the weft threads in looms for weaving preparatory chenille for which I have filed an application in Austria March 28, 1929; Switzerland June 14, 1929; England April 8, 1929; Holland April 17, 1929; Spain July 9, 1929; France July 1, 1929; Belgium July 6, 1929; Czechoslovakia April 4, 1929; Italy April 9, 1929; Germany Jan. 14, 1928.

10 The present invention relates to an automatically and mechanically acting device for picking single weft threads on a shuttleless or needle loom during the weaving of preparatory chenille material as required in the
15 manufacture of chenille carpets.

The preparatory chenille material is a cross striped product of weaving and is, by suitable machinery, cut into long endless strips, the so-called chenille, which later on is used as
20 weft on looms of a specially strong construction and which finally produces the figured carpet. The invention is restricted to the so-called preparatory material which subsequently in the process is to be cut up into
25 strips and which, like all woven goods, consists of warp and weft.

The preparatory chenille material may have a great variety of colors, particularly the weft threads in order to produce the design in the carpet. Appliances are therefore
30 needed for selecting and conveying another weft thread whenever a change of color is required and the speed of the loom must be such so as to provide time for selecting another weft thread which follows the last one
35 inserted in the shed.

My invention is designed to increase the speed of the loom by an arrangement which admits of selecting a weft thread during the
40 final period of the insertion of a preceding one. The invention appertains to the means and arrangement of parts for inserting the weft threads, and to the construction parts connected therewith. It does not concern the appliance for selecting the weft
45 threads which can be selected according to will.

According to the invention the front end of the selected weft thread is gripped outside the shed by special pincers so that the

end part of it crosses the space of the open shed or lies alongside of it as the case may be. For achieving this it may be necessary to draw the weft thread by the said pincers a certain length out of the appliance for
55 selecting and conveying it in reach of them. Then a wire-like bar 4 provided with a recess 6 in its front end is moved in the direction of the weft motion so that the recess bears
60 against the weft thread behind its front end and, while continually unwinding the thread, inserts it as far as slightly over the middle of the shed in a V-shaped condition, the front end of the weft thread still being held
65 firmly by the above mentioned pincers. From the opposite side of the shed a wire-like bar 5 has at the same time entered the shed and in the center engages with its hook-shaped head 7 of the other bar so that the
70 hook takes up the bent thread out of the recess 6. The weft thread is then cut off near the feeding appliance whereupon the take up wire moves backwards taking up the thread by means of its hook out of the
75 recess of the first bar now returning likewise to its initial position and drawing its cut off rear end completely through the shed, the front end still being held firmly by the above mentioned pincers which however
80 open the release after the weft thread is in place.

This method of inserting the weft threads offers the great advantage that during the last part of the process that is as soon as a
85 thread is cut off the next colored weft thread already can be selected and adjusted, and thereby a considerable increase of the speed of the loom gained.

I have illustrated by invention in the accompanying drawings of which

Figure 1 is a longitudinal section through the loom,

Figure 2 a top view of a detail and

Figure 3 a view against the lay,

Figure 3a a view of a detail at right angles to Figure 3.

Figures 4-7 are diagrammatical views illustrating different positions of the weft thread and of the parts acting to insert it
100 into the shed.

Referring to Figures 4-7 which illustrate in a general way the essential steps in my new process of inserting the weft thread into the shed, the numeral 1 designates a gripper which in Figure 4 is shown just after gripping the thread 2 and drawing it a certain length out of a conveying appliance 3, a pushing bar 4 and a taking-over bar 5 resting in their inactive positions. In Figure 5 the pushing bar 4 has moved towards the middle of the open shed and has by meeting the thread with a nook 6 in its front part pushed it along in a V-shape and drawn it out from the conveying appliance whilst from the other side of the shed the taking-over bar 5 has also entered the shed. In Figure 6 the two bars have met in such a way that the taking-over bar 5 with its hook-shaped end 7 has entered the mouthpiece of the pushing-bar 4 and removes the thread, which is cut off at this moment near the conveying appliance, out of the nook 6 as shown in Figure 7 both bars removed towards their inactive position.

The gripper 1 now releases the weft and moves towards the color selector, and then again seizes the thread end, which extends either from the same color spool as before or from another thread from another spool when a change of color is needed and then draws the thread across the shed opening to a certain extent, so that the above described operation can be repeated.

In Fig. 3 the conveying appliance is shown to consist of a series of tubes 3 arranged vertically upon the loom in a circular row and containing each the end of a weft thread of a different color. This apparatus is controlled by a Jacquard device not shown in the drawing and the tubes 3 are operated similarly to the printing levers of a typewriter inasmuch as each of the tubes 3 can from its upright position in the circle 8 be swung into a more or less horizontal position offering the projecting end of its thread at one and the same point, see Fig. 2, common to all those tubes and lying within reach of the gripper 1. This gripper consists as shown in Fig. 1 of a pair of tongues the joint 9 of which is carried by a lever 10 the latter being controlled by a cam 11 through a double armed lever 12 loose on axle 13. In the position shown the cam 11 has moved the gripper with the thread gripped downwards so that it has pulled the projecting end of the said thread out of the tube 3 downwards across the opening of the shed 14. In order to open and close the tongues for releasing and for gripping the thread in the proper moments another cam 15 works on the double armed lever 16 which moves a rod 17 upwards and downwards. The latter thereby turns a double armed lever 18 the free end of which is shifting a bar 19 to and fro which by the connecting links 20 opens

or closes the rear handles of the gripper tongues. The double armed lever 18 is pivoted on the arm 21 which can swing around pivot 22 under the influence of a connecting rod 23, double armed lever 24 and cam 25. The scissors 26 for cutting off the thread near the mouth of a tube 3 are controlled by two operating rods 27 connected to a disk 28 which can be turned by arm 29 under the influence of a rod 30 the latter being controlled by arm 31 which is fixed upon the shaft or axle 13.

The pushing bar 4 and the taking-over bar 5 are mounted within the lay 32 and actuated by driving guides 33 on an axle 34 acting on rollers 37 upon the short arms of double armed levers 35 which are pivoted on pins 36 in the lay and connected to the said bars by connecting links 38.

Claims:

1. The combination in a loom for weaving chenille material, of means for picking, selecting and conveying weft threads, of gripping means operated to grip the front end of a thread, means actuated to pull the thread for a predetermined distance and then push the thread into V-shape, cutters cooperating with the gripping means, controlling mechanism, and actuating means which selects and conveys succeeding weft threads through the shed, the lay operating to bring the weft thread into its final position.

2. In a loom having means for selecting a single weft thread out of a plurality thereof and then conveying the thread to a certain point, a gripping device comprising jaws, a member on which the jaws are pivotally mounted, suitably operated toggles for opening and closing the jaws, means for moving the member toward and away from the thread so positioned and operable with the jaws to pull said thread along the side of a shed of a loom, a bar having a recessed end movable partially through the shed and operable to engage the thread and push it into the shed approximately half way thereof, means for cutting the thread near the end of the conveying means, a coaxing bar movable from the opposite side of the shed and operative to remove the thread from the first mentioned bar and carry the thread with its free end to the opposite side of the shed, the said thread being then released, whereby a repetition of the aforesaid operation may occur.

3. In a loom having means for selecting a single weft thread out of a plurality thereof and then conveying the thread to a certain point, a gripping device adapted to be moved and operated to grip the thread and pull it along the side of a shed of a loom, a bar having a recessed end movable partially through the shed and operable to engage the thread and push it into the shed approximately one half way thereof, means for cut-

ting the thread near the end of the conveying means, a coacting bar movable from the opposite side of the shed and operative to remove the thread from the first mentioned bar and pull it through the shed, means for operating the gripper to release the thread whereby a repetition of the aforesaid operation may occur.

4. The combination in a loom for weaving chenille fabrics, of means for picking, selecting and conveying weft threads with the threads projecting at the ends of the conveying means, gripping means, means for moving the gripping means toward and away from the end of the conveying means and operative to grip the end of a thread and move it along the side of a shed of a loom, means movable at right angles to the length of the thread and operative to engage the thread and push it into the shed a suitable distance while gripped at one end, means for cutting the thread near the end of the conveying means leaving a free end projecting therefrom, a member movable in the shed toward the first mentioned member carrying the thread and operative to remove the thread from the first mentioned member and pull it through the said shed, and means for operating the gripping means to release the thread whereby a repetition of the operation may ensue.

5. The combination in a loom of the character described, of a reciprocatory needle provided at one end with a notch, a member reciprocatory in line therewith and provided with a hook, a thread cutting means, a thread guide one end of which terminates adjacent to the thread cutting means, and gripping jaws operating to hold the thread after separation thereof by the thread cutting means, substantially as described.

In testimony whereof I have signed my name to this specification on the 17th day of September, 1929.

JOHANNES MENSCHNER.