A Combined Knitting and Weaving Loom

By BRUNO GARTEN, BERLIN, GER.

The advantages of knitted goods, the ease of working with them, their yielding qualities, and so on, are universally recognized, as are also the drawbacks which arise therefrom in the course of time, whereby they lengthen and the loops finally break and slip.

The warp knitting and weaving loom invented by Dr. Edwin Wildt, Leicester, covered by German Patent No. 454,161 and described in the following lines, reduces these disadvantages, especially in regard to lengthening and too great extensibility. According to this invention, a loom works in conjunction with a warp knitting machine and produces a fabric, the simplest weave of which is shown in Fig. 1 as a combination of weaving and knitting, the thread system 2 being the ends, 18 the knitted warp, and 29 the picks.

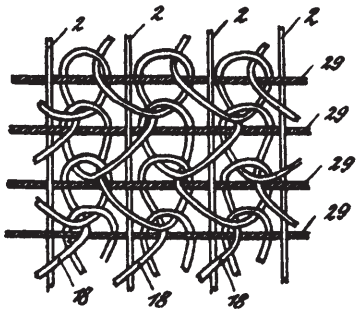


Figure 1

Fig. 2 shows a vertical section of this twin machine from the side, and the two operations of weaving and knitting follow one another alternately just as ordinarily in each of the separate machines. The first operation is weaving, whereby the warp 2 is drawn from the warp beam 1 over the whip roll 3, through the eyes of the heddles 4 and through the reed 5. The shed is formed in the usual way and the filling 29 is carried by a shuttle through the shed at 6. The lay 21 with the reed 5 beats up and pushes the filling forward to the point 7, where the pick is pressed by a pusher 8 into the corner of the shed 9, just in front of the latch needles 10, which have just disappeared in holes of the cloth guide rod 12, and there held fast. The weaving operation is now completed and knitting begins.

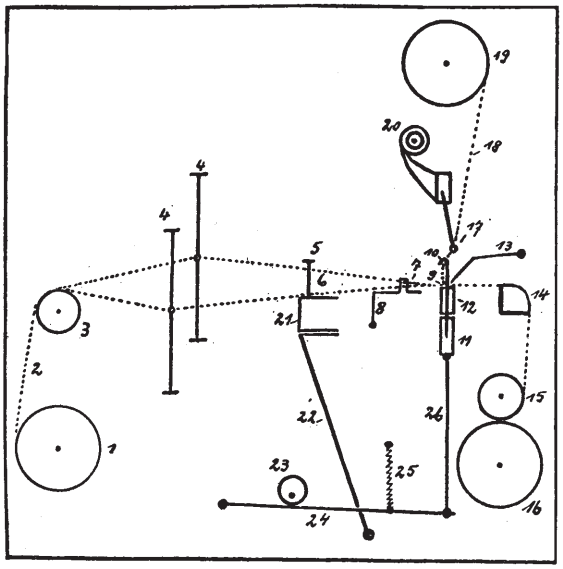
The latch needles 10 rise, and at the same moment the presser 13 presses the finished cloth against the cloth guide rod 12 and prevents it from rising. The latches of the needles open, the old loops glide behind them and finally settle at the foot of the needles. A row of guides 17, through which the knitting warp threads 18 are drawn, is displaced to one side or the other, according to the type of knitting, actuates a pattern cam disc 20 corresponding to the type of knitting, lays the warp knitting threads in the open latch needles 10, and thereby beds the last pick in the row of knitted loops. Now the needles sink down and the old loops produced by the second last lapping knock over the latches in order to prevent the loops from jumping out. Then they lay themselves over the latches, and are finally removed or knocked over, whereby the last lapped knitting threads in the form of loops are drawn through the old loops. Afterwards weaving and knitting follow one another alternately, so that woven and knitted fabric is con-

tinually being produced. The fabric is rolled up on the cloth beam 16.

Besides the plain cloth shown in Fig. 1, designs can be made on the combined knitting and weaving loom. In this case the heddles 4 are replaced by several heddles or by a jacquard machine.

A number of pattern cam wheels are substituted for the single pattern cam wheel 20, corresponding to the type of knitting. Or a jacquard device can be used which permits of an extremely diversified range of designs, both of the woven cloth as well as of the knitted goods.

1 warp beam
2 warp
3 breast beam
4 heddles
5 reed
6 shed
7 beat-up of the reed
8 pick pusher
9 angle of shed
10 latch needle
11 latch needle bars
12 cloth guide rod
13 presser bar
14 breast beam



15 sand roller
16 cloth beam
17 row of guides
18 knitting warp
19 knitting warp beam
20 cam wheel
21 lay
22 sword of lay
23 tappet
24 pull down lever for 11
25 counterspring
26 carrier for needle bar

Figure 2