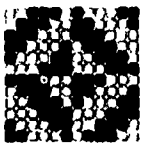
Textile Design

WORSTED SUITING.



Complete Weave
12x12.

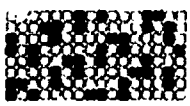
Warp:—5,184 ends, all 2/50s worsted, 12-harness straight draw.
Reed:—13½×6.
Dress:—

2 ends, black	=	2 ends,
4 ends, olive	=	4 ends,
1 end, brown	=	1 end.
3 ends, black		
4 ends, olive	× 23	184 ends
1 end, black		
1 end, black	=	1 end

Repeat of pattern: 192 ends.

Filling:—75 picks per inch, use the same counts, colors and arrangement as used for warp.
Finish:—Worsted finish: 56 inches wide.

WOOLEN SUITING.



Complete Weave
Repeat 16x8.

Warp:—8,192 ends, 16-harness straight draw, all 2/52s worsted.
Reed:—16×8 = 64 inches wide in loom.
Dress:—

2 ends, red orange	=	2 ends,
6 ends, light drab, No. 1 shade	=	6 ends,
8 ends, light drab, No. 2 shade	=	8 ends,
2 ends, sky blue	=	2 ends,
6 ends, light drab, No. 1 shade	=	6 ends,
8 ends, light drab, No. 2 shade	× 14 =	224 ends,
8 ends, light drab, No 1 shade		
8 ends, light drab, No. 2 shade	=	8 ends,

Repeat of pattern: 256 ends.

Filling:—73 picks per inch, all 2/52s worsted, arranged thus:

1 pick, red orange	=	1 pick,
3 picks, light drab, No. 1 shade	=	3 picks,
4 picks, light drab, No. 2 shade	=	4 picks,
1 pick, sky blue	=	1 pick,
3 picks, light drab, No 1 shade	=	3 picks,
4 picks, light drab, No. 2 shade	× 14 =	112 picks,
4 picks, light drab, No. 1 shade		
4 picks, light drab, No. 2 shade	=	4 picks.

Repeat of pattern: 128 picks.

Finish:—Worsted finish; 56 inches wide

THE DEVELOPMENT OF THE POWER LOOM.

During the second year of the 20th century, as we take our stand amid the noise and bustle of the weave room in a woolen mill, do we ever think of the time when no such thing was known or thought of as a power loom? We watch the shuttles flying backwards and forwards through the warp threads, driven by the pickers of a Knowles, a Crompton, or a Dobcross loom; we watch the ever lessening size of the warp-beam delivering the warp, and the ever increasing bulk of the manufactured cloth that winds itself round the receiving beam at the front of the loom, and it is difficult to realize the amount of labor which our ancestors had to expend in producing a yard or two of cloth.

The earliest we hear of power-loom weaving was in 1678, the invention being that of a Frenchman, named, I think, de Genne. It was not a success. The first real step towards the improvement of the loom, and which increased its productive property, was the invention of John Kay, who devised the fly shuttle. The next real inventors were two brothers named Barber. They made a power loom with a main shaft running from side to side, and carrying tappets for driving the picking arms. Dr. Cartwright, however, was the first who solved the problem of automatic weaving. This was in 1775. Cartwright was at Matlock, when the idea was first suggested to him by a number of manufacturers. The invention of spinning machinery had resulted in the production of such an immense quantity of yarn, that it was impossible to find a sufficient number of weavers. Production from the looms was so slow that it required a very large number of looms to balance the output from the mules. The first loom devised by Cartwright was a complete failure. He had never seen a loom, nor did he know anything of its construction The warp in his first loom was fixed perpendicularly and according to his own statement "the reed fell with a force of 50." The loom required the strength of two powerful men to work it at a slow rate and only for a short time at that. In 1780, after seeing hand-loom weavers at work, he took out patents for his second loom, which was a masterpiece of ingenuity and contained the principles of mechanism which exist in the modern tappet loom. In addition to possessing the motions of shedding, picking, warp let-off, and take-up, there were contrivances for stopping the loom when the filling thread failed, and subsequently he added a warp stop motion and automatic temple. The system of tappets as devised by him for weaving a plain cloth, though rude in construction, is exactly the same as that which obtains in the plain or calico loom to-day, and it is obvious that this principle of weaving has been derived from the treadle loom; in the power loom there are treadles and top levers just as in the hand loom there were similar sets of treadles.

A rough outline of the simple tappet loom as used at the present day for plain weaving, may be of interest to some as it is just an improved form of the loom invented by Cartwright so many years ago. The tappet loom is the simplest kind of power loom. It is used in every branch of weaving for the elementary classes of goods. It is one of the best and steadiest, as well as simplest methods of shedding the warp, indeed there is no system more steady and certain. For this reason all kinds of yarn can be woven in the tappet loom. In the woolen trade, the loom is chiefly used in the production of heavy goods, such as kerseys and beavers; in the worsted trade it is mainly used for coatings, serges and dress materials. If it is not intended to produce cloth composed of fancy weaves or of designs occupying more than 10 shafts, probably no loom is more suitable than this. It requires less fixing, and does not easily get out of action. The principal parts are, first, the tappets fixed on the tappet shaft. These receive motion from the main shaft of the loom, which drives the low shaft carrying the cams for the picking motion, and an additional loose shaft on which the tappets are fixed. It follows that the speed of the tappet shaft must be varied according to the number of tappets it carries. The treadles are operated upon by the tappets, and are connected by the streamer rods to the jack levers. These are fastened on to a square or rocking shaft which carries the half-moon levers, and these are secured to the top of the shafts. The loom is open-shed in principle, because the tappets will keep a shaft or shafts up or down for several picks in succession. In some tappet looms the shafts are only lifted positively, the tappet being the lifter and not the depressor, but being shaped to allow the tappets to be drawn down by