

# Posselt's Textile Journal

Vol. X.

January, 1912.

No. 1

## POLO CLOTH.

The same refers either to the Chinchilla, the Plain-Face, or the Reversible-Blanket Cloth type of fabric structure, being a line of heavy-weight Woolen Cloakings, at present extensively in demand.

**CHINCHILLAS:** The construction of these fabrics adapts them well for the purpose, they are designed for, providing warmth to the body of the wearer in cold weather, and with the addition of one or two special machines, in the finishing room, they can be made by most any woolen mill.

The object aimed at in the construction of these fabrics is to provide a soft, spongy structure, the pores of which, filled with air, acting as a protection to the wearer, to retain warmth to the body. The same as in its fabric structure, the garment made from these fabrics will be of a more or less loosely fitting type.

The fabric must be constructed in the loom with a view of facilitating the finishing process, which chiefly consists in the production of a thick, heavy velvety nap, rubbed afterwards on the Chinchilla Machine.

Chinchilla cloth is what we technically term reversible cloth, the garment in many instances being worn either side out; in most cases however the back structure takes the place of a lining, or with effective color combinations being also used for forming the collar, trimming the cuffs and pockets of the garment.

These fabrics are made reversible, either in plain colors, in mixes, or with a fancy plaid back; they are also made in uni-color structures.

Figs. 1 to 8 are a collection of weaves well suited for these fabrics. The same are what we technically call, weaves constructed to be used with one system warp and two systems filling.

The warp forms, with its places of interlacing with the filling, the body of the fabric, and is not visible either on the face or the back of the cloth.

Two systems of filling are made use of, the same interlacing respectively either as face or back picks; being of a different color or mix they in turn produce the reversible effect to the fabric, if so desired.

Of our collection of eight weaves previously quoted, the first five refer to the arrangement of 1 pick face to alternate with 1 pick back; the last three weaves are constructed with 2 picks face to alternate with 1 pick back.

Weave Fig. 1 has for its foundation the 4-harness broken twill; weave Fig. 2 the 5-leaf satin; weave Fig. 3 the 6-leaf satin; weave Fig. 4 the 7-leaf satin, and weave Fig. 5 the 8-leaf satin.

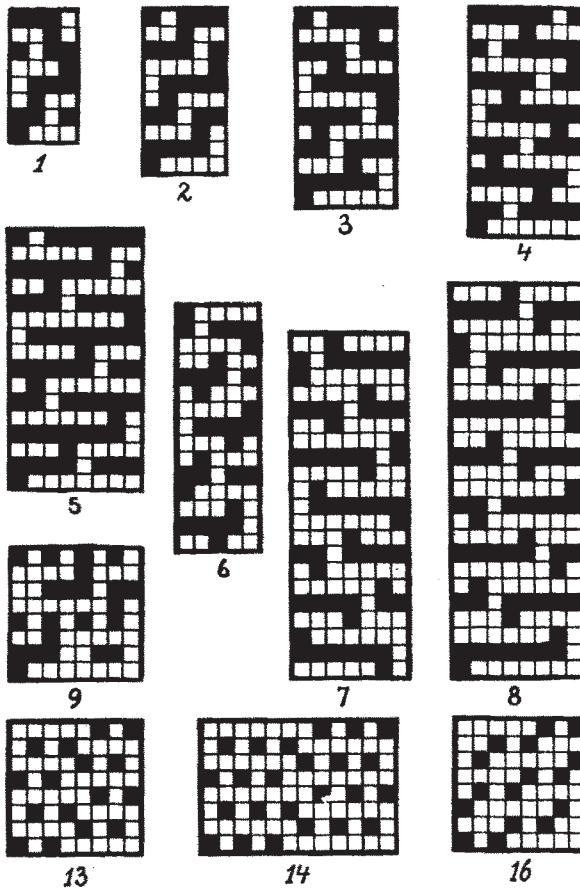
Weave Fig. 6 has for its face the 5 x 10 displaced satin and for its back the 5-leaf regular satin.

Weave Fig. 7 has for its face the 7 x 14 displaced satin and for its back the 7-leaf regular satin.

Weave Fig. 8 has for its face the 8 x 16 displaced satin and for its back the 8-leaf regular satin.

On account of the warp having to form the body of the structure, *i. e.*, impart to it the necessary strength, select for it a strong healthy wool fibre; a special reference to fineness is not a necessity. Frequently a cotton or a union (cotton and wool mixed) warp is used.

Upon the selection of the proper filling, the success of the finished fabric depends; a short to medium fine staple wool has to be used.



Weave Fig. 9 is a specimen for a plaid back. The same calls for 2 systems warp and 3 systems filling. The weave for the face is the 4-harness broken twill, filling-effect; the plain weave is used for the back. The latter weave has been selected since the fancy plaid has to show up clear and distinct, the plain weave being the best adapted for it in connection with these loose textured fabrics. Besides a face and back filling, we find a stuffer pick used to increase the bulk of the fabric.

Picks 1, 3, 5 and 7 are face picks,

Picks 2 and 6 are back picks,

Picks 4 and 8 are stuffer picks.

Having given a description of the construction of these weaves, a few points on the finishing will be of interest.

The characteristics of this class of woollens are bulk, pliability, and softness. With these is combined a full face, the exact appearance and condition of which will vary considerably with the taste of the finisher and the demands of the market. The filling, as mentioned previously, must always be such as will admit

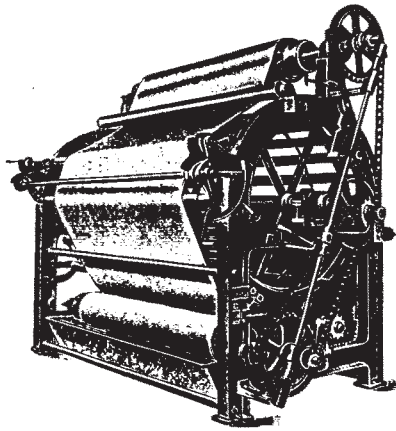


Fig. 10

of the formation of a good thick velvety nap, upon which the whole finish finally depends.

The first process the woven fabric is subjected to, is the fulling. Chinchillas and Ratinés must be fullled very little, so as to be absolutely free from hardness or stiffness of any sort. In connection with all the wet finishing processes the fabric is subjected to, be careful that the goods do not shrink excessively.

The next important process is that of gigging. In order to produce perfect work, see that all wrinkles are smoothed out of the fabric before it comes into contact with the teasels, so as to prevent the formation of streaks in the nap. The gigging must be done

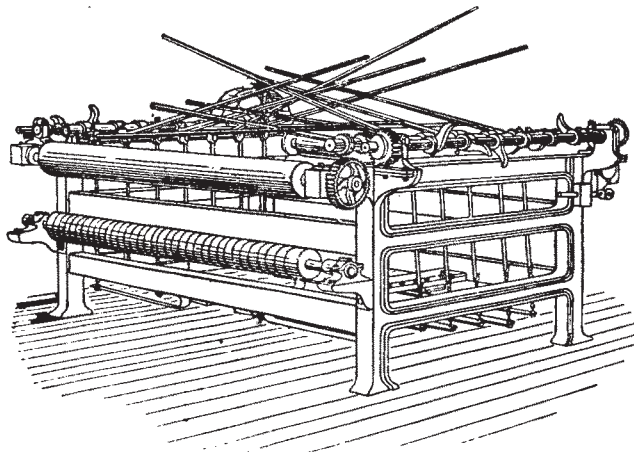


Fig. 11

thoroughly, and every effort must be made to produce a good, full nap. The face threads must not be cut, and yet a full and bulky foundation must be made, on which the after processes may have an opportunity to produce the required finish. In all cases of gigging chinchillas, it is well to go slowly. Cautious working, until a good full velvety nap covers the threads, is the rule. It is best not to use very sharp work or new teasels, for a break in the filling is apt to show up plainly in the face of the finished cloth.

The Single Cylinder Up and Down Gig is the one most advisable to use, since there is no sudden and violent reversing of the nap as is the case with the Double Cylinder Rotary Gig, hence much wear and waste on the nap is avoided, resulting also in the formation of a better and more enduring nap. There are two types of these single cylinder gigs met with, *viz*: the Single Contact and the Double Contact Gig. Fig. 10 is a perspective view of the latter type, clearly showing the two contacts of the fabric to the cylinder as carrying the teasels on its surface. In connection with the Single Contact Gig only one contact of the fabric to the cylinder is provided, the latter being in this instance, as a rule, of a somewhat smaller diameter than the one used with a Two Contact Gig.

Chinchillas, in gigging, should be kept somewhat damper than other woollens, as this always decreases the amount of waste in flocks which is apt to result from the process. Do not rush the procedure, since the whole appearance of the finish depends almost solely upon the correct raising of the nap.

After the cloth has received the proper amount of gigging, it is taken to the whipping machine. Some finishers prefer to first crop the face of the fabric previously to sending it to the whipping machine.

Fig. 11. shows us such a whipping machine in its perspective view. The same consists of a frame, over which the cloth is passed. To this frame is attached a series of rods operated by a cam and spring mechanism that raises and lowers these rods similar as one would do in whipping a carpet by hand. Under these rods the cloth is slowly passed, and while it is held tightly in place by the friction rollers, it is violently beaten by the rods in such a way as to cause the nap to be loosened from the bottom and stand erect, *i. e.* produce the velvety, full nap previously referred to.

The cloth as leaving the whipping machine, whenever possible, is run direct onto a drier, without being folded in its wet state, and dried just as quickly as possible, for if the nap is allowed to become rubbed or matted while it is wet, undesirable results are sure to show on the face of the finished cloth. If such an undesirable effect is produced, nothing can remove it but a rewetting, and whipping over again.

The fabric is now ready for shearing. At the shear the process differs somewhat from that which pertains to other woollens, in that the ordinary laying brush is dispensed with, a wire brush being put in its place, the latter more evenly and thoroughly raising the nap. This wire brush is a roller, covered with card wire, and its speed is a trifle faster than that of the cloth. It rests lightly on the cloth and raises the nap very gently, without any wearing effect on it whatever. The rest of the head of the shear is lowered a little so that the revolver will not drop back too much on the ledger blade when running. The amount of shearing depends upon the condition of the nap and upon the finish desired.

The fabric is now ready for the Chinchilla Machine, of which a perspective view is given in Fig. 12. This machine consists of a strong upright frame,

with a transverse surface or *bed* about 3ft. from the floor and some 2ft. wide by 5ft. long. This bed is strongly attached to the framing of the machine so as to secure perfect rigidity. Said bed or surface (not seen in the illustration) is covered with a piece of carpet, held in place by means of clamps or rods.

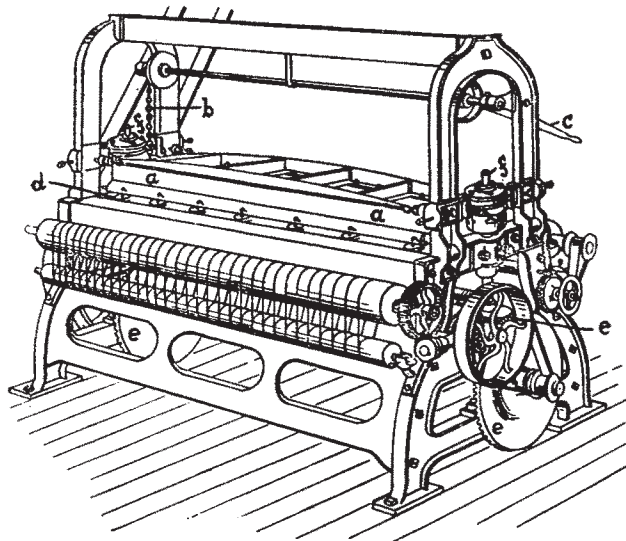


Fig. 12

The fabric to be rubbed is held very tense while under operation, by means of a wire friction roller, being passed slowly over this bed, and while there, is subjected to the action of the other part of the machine called the *follower a*.

The latter is a frame of iron, the same size as the bed, suspended above the latter by chains *b*, and capable of being raised and lowered by handle *c*, and of resting upon the face of the cloth. The face of this follower *a* is of wood and must be perfectly true. To this face of the follower is securely fastened, by means of clamps *d*, a flat piece of rubber, about half an inch thick. This rubber surface may be either plain or pebbled, coarse or fine, but in any case it must be of uniform thickness, so as to present a uniform pressure to the fabric under operation when in contact with it.

From one side frame to the other, of the machine, near the floor, passes a shaft, which carries the main pulleys. This shaft, by means of bevel gears *e*, at each side, operates an upright shaft *f*. On their upper ends, these two upright shafts *f*, are connected to the follower *a*, the operator being able by this mechanism to revolve follower *a* in any direction; in concentric circles of varying width, or to have greater or less sweep, as the finish desired may require. It is the rubbing of the lower surface of this follower upon the nap of the cloth, sheared to its proper length, that twists this nap into spiral nubs, or forms wavy ridge effects, warp ways, filling ways, or obliquely, as desired.

In connection with a nub effect, after giving the fabric a thorough rubbing, take the same back on the shear and clip the tops of the nubs slightly, so as to leave them a little flat or rounded. The piece is then passed a second time through the chinchilla

machine, giving the follower somewhat less sweep than before, so as to harden the nubs, *i. e.*, impart to them a sufficient compact intermingling, so they will retain their shape for some time.

After the last run through the chinchilla machine, or the shear, as the case may be, the goods are then measured, rolled and weighed, and when the piece is ready for the market.

With reference to the follower, some finishers hold that the rubber is best when plain, others, when pebbled; again some use plush in place of the rubber covering of the follower. When using a smooth rubber, the surface must receive a periodical cleansing, as it becomes coated with grease and glaze so as to be unfit for use, a feature more often the case when handling piece dyes. Benzene or a mild alkali is best to use for the cleansing of these rubber faced followers, for which reason, when a great amount of work has to be done by the machine, a duplicate follower for the machine is required. About 500 *r. p. m.* is a good average speed for the follower.

While awaiting shipment, at the mill, or in the commission house or at the stock room of the clothing house, chinchillas must be stood on end, not packed in cases or stored away on the flat of the roll.

**PLAIN-FACE POLO CLOTH:** The same fabric structure as used for the chinchilla finish is employed, provided a different coloring for face and back is desired.

For uni-color effects, single cloth weaves, presenting a prominent floating of the filling, are also used.

Figs. 13 and 14 present specimens of such weaves, repeating respectively on 8 x 4 and 12 x 4.

These weaves show that they possess sufficient interlacing to produce a strong fabric, as well as sufficient floating of the filling to permit during gigging the formation of a full hairy covering for the face of the fabric.

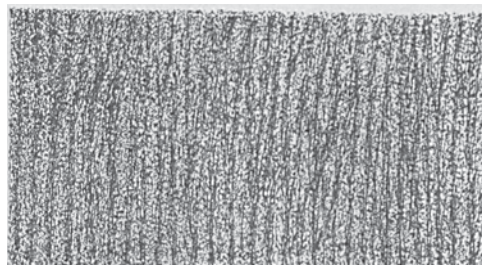


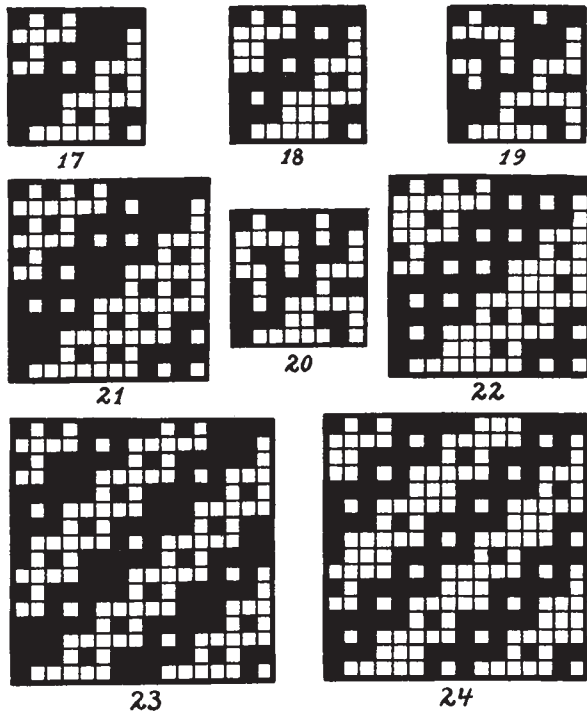
Fig. 15

Fig. 15 shows a reproduction of the finished fabric.

Provided examples given, or any similarly constructed weaves should show lines in the direction of the warp on the face of the finished fabric, being the result of the arrangement of exchanging the points of interlacing and floating of the filling under a regular arrangement, and such lines should be objectionable, we then must distribute said places of interlacing.

The procedure is explained in connection with weave Fig. 16, repeating on 8 x 8, being weave Fig. 13 re-arranged for a distributed stitching, after the 8-leaf satin principle.

With reference to finishing, after a slight fulling and a thorough washing, the fabric must be freed from wrinkles so as to avoid any appearance of streaks due to gigning. Gig thoroughly on both sides. Should the conditions admit of it, the piece should be cropped, the nap straightened and then dried. After drying, the nap should be softened up, and the fabric then sheared. In the latter process, instead of the ordinary raising brush, the same as was done with the chinchilla finish, a wire brush is substituted, which more thoroughly and evenly raises the nap for the action of the revolver. When the required closeness



of shearing has been attained, one or two runs are given to the fabric with laying brush off, after which the fabric is ready for inspecting, measuring and rolling.

**REVERSIBLE-BLANKET-CLOTH:** These are made on the regular double cloth principle, either with single or two ply twist yarn. As will be readily understood, they are made of a more solid construction than the previously explained types of Polo Cloth structures.

Figs. 17 to 24 show a collection of these weaves.

Weaves Figs. 17 and 18 have for their face and back structure the 4-harness even sided twill. The stitching of the two plies is done in weave Fig. 17 by the back warp interlacing (not visible) with the filling of the face ply, whereas in weave Fig. 18 the face warp is stitched (not visible) to the filling of the back ply. The repeat of either weave is 8 warp-threads and 8 picks.

Weaves Figs. 19 and 20 have for their face structure the 4-harness even sided twill, and for their back structure the plain weave. Fig. 19 is stitched back warp to face filling and Fig. 20 face warp to back filling. Repeat of both weaves 8 warp-threads and 8 picks.

Weaves Figs. 21 and 22 have for their face and back structure the 6-harness even sided twill. Fig.

21 is stitched back warp to face filling and Fig. 22 face warp to back filling. Repeat of both weaves 12 warp threads and 12 picks.

Weaves Figs. 23 and 24 have again for their face and back structure the 4-harness even sided twill, and correspond to weaves Figs. 17 and 18, the difference being that in the latter weaves we had used the stitching arranged after the plain weave principle, considering every other warp-thread and pick only, whereas in connection with weaves Figs. 23 and 24 we arranged the stitching by the 8-leaf satin principle, considering in this instance every warp thread and pick of the respective ply under consideration.

In some instances, we may come in contact with 2-ply structures where a special binder warp is used to combine the two plies. This extra binder warp is generally a fine count of 2-ply cotton yarn, used to prevent the fibres of one structure working through onto its mate face during weaving. This, as will be readily understood, refers more particularly to fancy-backs showing large, pronounced check patterns.

The same as the construction of these fabrics differs from that of Chinchilla and Plain-Face Polo Cloth, so differs the finishing process of these fabrics. A regular, clear face finish is, in most instances, desired for both sides of the fabric, showing the twill weave distinct on its face, and a clear pattern in connection with the plaid effect of the back structure.

#### GAUZE OR LENO WEAVING.

(Continued from December issue.)

We will next explain and illustrate the combination of both styles of crossing of the whip-threads used in the same fabric. Drawing-in draft Fig. 9 explains the subject, *i. e.*, the drawing-in of the warp in its set of ground-harness, and the arrangement of threading doup, *viz.*,

1st. pair, whip-thread threaded to the left-hand side of standard warp-thread, *i. e.*, using a left-hand doup.

2d. pair, whip-thread threaded to the right-hand side of standard warp-thread, *i. e.*, using a right-hand doup.



Fig. 9

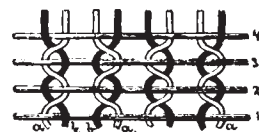


Fig. 10

Fig. 10 shows a sketch of the woven fabric.

Harness chain is similar to the one required and explained for fabric Fig. 4, and illustrated in Fig. 5.

Drawing-in drafts, Figs. 3, 6, and 9, are illustrated for 2 ground-harness and 1 doup. This has been done to simplify explanations given to illustrate the principle of gauze weaving. Guided by the texture of the fabric (number of warp-threads per inch), we may have to increase the number of ground-harnesses to