NOVELTY IN MEN'S WEAR FROM ABROAD.
Woolen Melton Suiting.
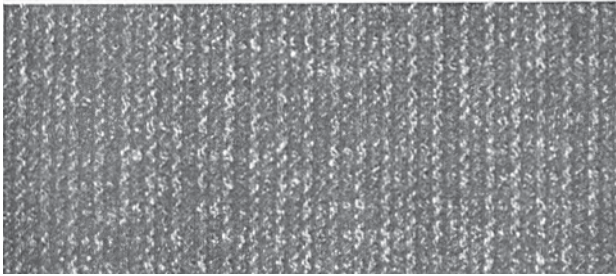
Warp: 3456 ends.

Dress: 8 sections, each containing 54 patterns @ 8 ends, or 432 ends total.

Arrangement of Warp:
    1 end 4½ run, black.
    3 ends 5 run, white.
    1 end 4½ run, black.
    3 ends 2 ply, 8 run black and 10 run white.

    —
    8 ends in repeat of pattern.

ACTUAL REPRODUCTION OF FABRIC
from which details of fabric structure given, are taken.

Selvage: 20 ends each side, using 6 dents for same, equal ½ inch each side.

Reed: 12¼ with 4 ends per dent = 70½" width of fabric, plus 1" for selvages = 71½" width in reed.

Weave: ²⁄₂ 4-harness, even sided, twill.

Filling: 52 picks per inch in loom.

Arrangement of Filling:
    2 picks 5 run, gray mix.
    2 "   4½ run, black.
    2 "   2 ply, 8 run black and 10 run white.
    2 "   4½ run, black.

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    8 picks in repeat of pattern.

Black warp must be in lower shed when the two picks black are inserted.

Finish: Melton finish, scour well, full slightly, clip on shear, press, decatize and steam; finished width 56 inches.

COMPARISON OF FABRIC STRUCTURES.
By Wm. Watson.

Different settings are required not only for distinct classes of fabrics but also for different weaves in similar structures and for the same weave in different structures. The setting of cloths has in the past been almost entirely based upon experience, and, therefore, has offered considerable difficulties to those with limited experience. In this article a basis is given that will enable the counts of the yarns and the threads per unit space, which are suitable for a given structure of cloth in a certain weave, to be reasoned out, which would avoid useless experiments in building cloths, while by it weaves and structures can be readily compared and the effects produced in the woven fabric be more clearly realized.

A complete treatise on the setting of cloths would be out of place here, and the calculations and allowances to be made are therefore given in a simple form (the angle of curvature of the threads is not taken into account). The results will be found valuable for practical purposes. The diameters of the yarns, the number of threads per unit space, the relative number of intersections in the weave, and the type of structure to be made (which includes the class of raw material of which the warp and filling are composed, and the kind of finish that is applied) are the leading factors in the calculations; but in building a cloth, the price at which it can be sold, has, of course, to be taken largely into account.

Diameters of Yarns.

The approximate diameter of a given count of yarn may be ascertained by finding the square root of the yards per lb. and deducting 8 per cent for silk, cotton, and linen yarns, 10 per cent for worsted yarns, and 15 per cent for woolen yarns.

(1)   The diameter of a 1/40's cotton yarn =
$\sqrt{40 \times 840}$ — 8 per cent = $\frac{1}{168}''$.

(2)   The diameter of a 2/60's worsted yarn =
$\sqrt{30 \times 560}$ — 10 per cent = $\frac{1}{116}''$.

It is obvious that if a 1/40's cotton yarn is $\frac{1}{168}$ of an inch diameter, 168 of such threads can be placed side by side just touching each other in one inch; and, in the same manner, 116 threads of 2/60's worsted. It is convenient to express the diameter of a yarn, not as a fraction of an inch, but as so many diameters per inch (the reciprocal of the diameter). Thus the diameter of a 1/40's cotton yarn may be expressed as 168 diameters per inch, and of a 2/60's worsted yarn as 116 diameters per inch.

Setting of Simple Structures.

Simple fabrics may be divided broadly into three distinct classes, as follows:

(*a*)   Ordinary structures, in which the warp and filling threads bend about equally.

(*b*)   Warp rib structures, in which the filling threads lie straight and only the warp threads bend.

(*c*)   Filling rib structures, in which the warp threads lie straight and only the filling threads bend.

In the ordinary structures the warp threads are separated from each other by the intersections of the filling threads, and the filling threads by the intersections of the warp threads. In the warp and filling rib structures the threads of the straight series are separated by the intersections of the threads which bend, but the latter are not separated by the intersections of the straight threads.

The approximate maximum setting in the loom of *square* ordinary cloths is found by the formula:

Diameters per inch of the yarn, times number of threads in one repeat of the weave, divided by number of threads, plus number of intersections in one repeat of the weave.

(3)   The number of ends and picks per inch in a *square* plain cloth woven in 40's cotton yarn (see the first calculation) =

$$\frac{168 \text{ diameters} \times 2 \text{ threads}}{2 \text{ threads} + 2 \text{ intersections}} = 84$$