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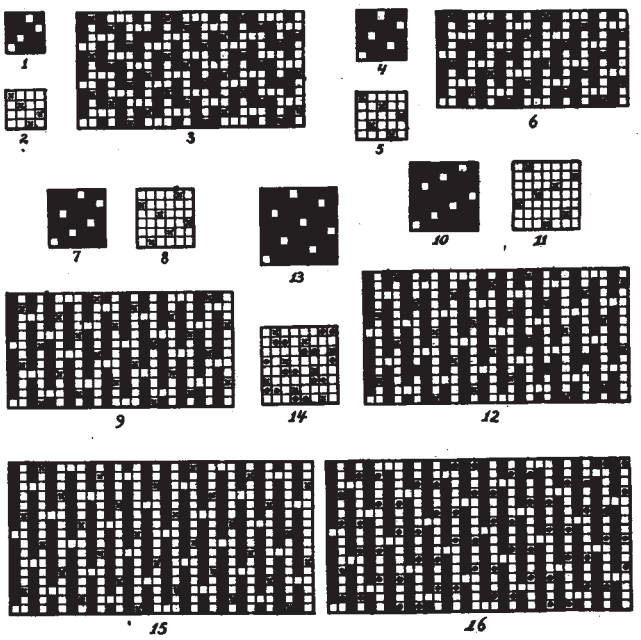
Double Warp Effects.

The object aimed at by the Designer is by use of this class of weaves—combining 2 mate weaves, i. e., Warp and Filling effect of one weave to produce a two sided effect, using one color or fancy effect for one system of warp-threads in the resulting combination — using a different color or fancy effect for the other system of warp-threads; the filling being of one color.

This method of combining combination weaves for a somewhat heavier class of fabrics — using at the same time fancy effects for face and back warp — resulting in most novel effects in the fabric produced.



Weave: Fig. 1 shows the 4 harness broken twill: 3 up 1 down (single cloth).

Weave: Fig. 2 shows the 4 harness broken twill: 1 up 3 down (single cloth).

Weave: Fig. 3 shows the "proper combination" of these 2 mate-weaves, to produce a two color effect to the fabric, 1 to be the face of the fabric 2 its back side.

As will be seen from the variety of weaves — they form a splendid foundation for constructing fancy effects for the face, as well as the back, of the fabric.

Weaves: Fig. 4 and 5 shows the combination of the 5 harness-satin — warp and filling effect — combined in weave Fig. 6.

Weaves: Fig. 7 and 8, shows the combination of the 6 harness-satin — warp and filling effect — combined in weave Fig. 9.

Weaves: Fig. 10 and 11, of the 7 harness-satin — warp and filling effect — combined in weave Fig. 12.

Weave: Fig 15 shows the combination 1 — 1, using the 8-harness satin warp effect — as shown in weave Fig. 13 — combined with its corresponding filling-effect.

Weave: Fig. 16 shows the combination 1 — 1, using the 8-harness satin warp-effect as shown in weave Fig. 13 with another weave; in combination, for its back.

Weave: Fig. 14 shows a figure effect for single cloth — Fancy-dress-fabric —, using an 8 x 8 weave — combination for that effect to produce the figure for single cloth.

Catalysts in Bleaching and Dyeing.

There is a tendency for modern industries to become more and more dependent on trifles. Steels having widely different physical properties are often very similar in composition and only differ from each other as regards the small amounts of carbon, phosphorus nickel, chromium or tungsten that they may contain. The hydrogenation of oils for use in margarine and candle manufacture is dependent on the catalytic action of nickel whereas the production of sulphuric acid depends on the union that finely divided platinum will effect between sulphur dioxide and oxygen. Catalysts are becoming important necessities in many industries.

In the textile industries, particularly in bleaching and dyeing, catalytic actions are widely used. This is largely because of the need for avoiding energetic chemical reactions in the treatment of all fibres. Tendering is a source of trouble to all textile workers, and in general catalysts allow of reactions to be carried out under conditions more moderate than those which are usually necessary. Thus in the discharge of parared and other ice colors, tin-salts were at one time much used. The discharge however was often accompanied by very serious tendering. When it was later discovered that hydro-sulphite preparations in the presence of a catalyst could effect the discharge under a moderate steaming this alkaline non-tendering process quickly displaced that in which tin-salts were used.

At an early stage in the treatment of fabrics an application of catalysis is used. Before cloth can be dyed it must be freed from all size, starch and other dressing materials. This could be done by means of acids and alkalies, but tendering might possibly ensue. To avoid this the cloth is now usually treated with diastafor.

When barley is allowed to germinate, an enzyme called diastase is formed. At a suitable stage the germination is stopped by heating the grain to a suitable temperature. After grinding and macerating the product with water an aqueous extract is produced. This extract contains the enzyme diastase and so receives its commercial name *diastafor.*

If diastafor be allowed to act on starch materials in a neutral medium, the starch is rendered soluble and is finally saccharified. So that fabrics steeped in diastafor overnight can be readily cleansed by a boiling out in water. The action of the diastafor is purely catalytic. Since the presence of quite small amounts of acid or alkalie destroy the enzyme the necessary conditions of the treatment prevent any possibility of the cloth being tendered.

It is a well known fact that fabrics dyed with sulphur colors — particularly sulphur blacks — are liable to become tender during storage. This has been