The Construction of Weaves

By E. Bittner

Color Effects on Satin and Other Weaves.

A great variety of attractive effects can be obtained by arranging the colored warp and filling threads on satin and other weaves.

Sharply defined stripes are produced with a warp satin weave by arranging two or more colors in the warp and weav-

Fig. 551.

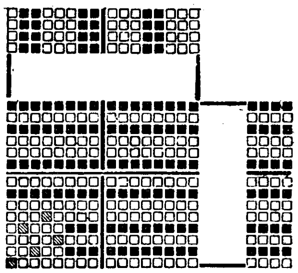
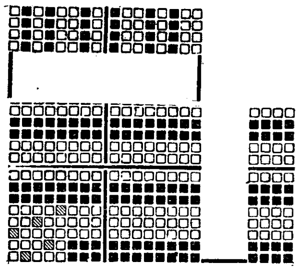


Fig. 552



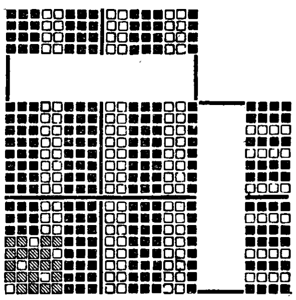


Fig. 553.

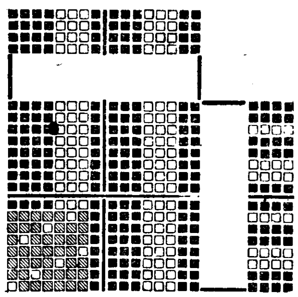


Fig. 554.

ing with closely set and solid color filling, as the filling shows very little or not at all on the face.

Warp stripes only are woven with a corkscrew weave, but

Fig. 555.

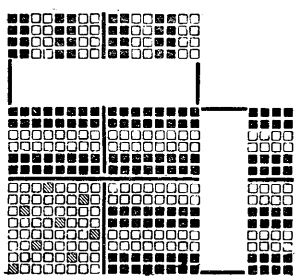
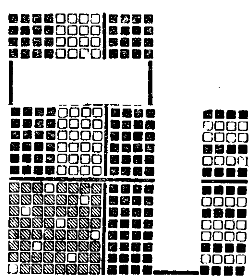


Fig. 556.



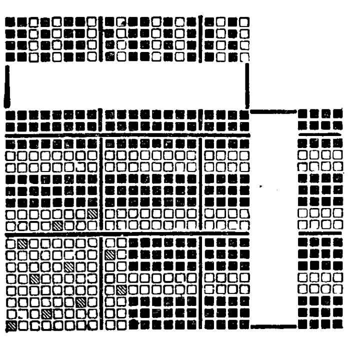


Fig. 557.

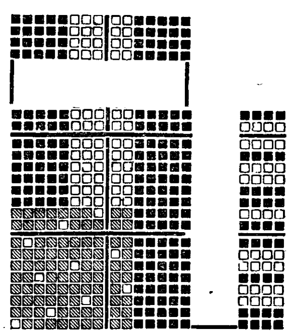


Fig. 558.

checks are produced with crepe weaves by introducing multiple colors in both warp and filling.

Various patterns are shown at Figs. 551 to 567.

Fig. 551. A cross stripe with a 5-leaf satin. Warp, 2 dark 3 light. Filling, 1 dark, 1 light, 1 dark, 2 light. Light warp is raised over the light picks; the dark warp over the dark picks. The pattern is shown at top and right of draft; the weave in lower left-hand corner.

Fig. 552. A wider cross-stripe on the same 5-leaf satin.

Fif. 553. Ling stripe on a 5-leaf warp satin. Dark warp is down when dark pick is woven; light warp is down when light pick is woven.

Fig. 554. Long stripe on a 7-leaf satin.

Fig. 555. Cross stripe on an 8-leaf filling satin.

Fig. 560.

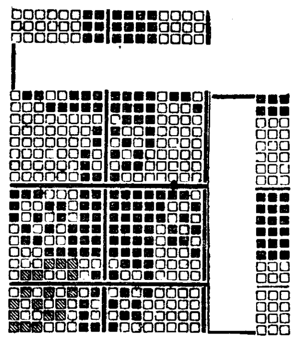
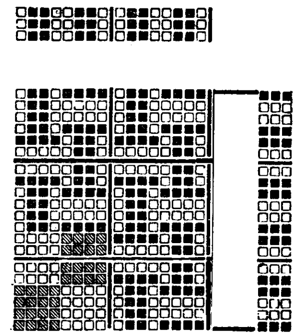


Fig. 563.



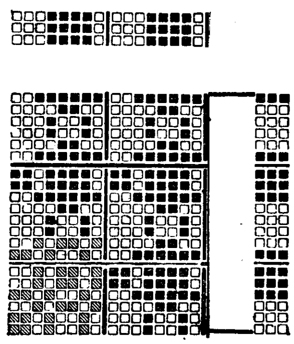


Fig. 564.

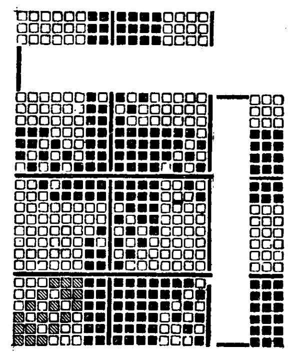


Fig. 565.

Fig. 556. Long stripe on an 8-leaf warp satin.

Fig. 557. Cross stripe on a 10-leaf filling satin.

Fig. 558. Long stripe on a 10-leaf warp satin.

Fig. 559.

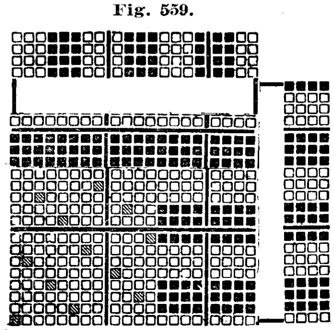
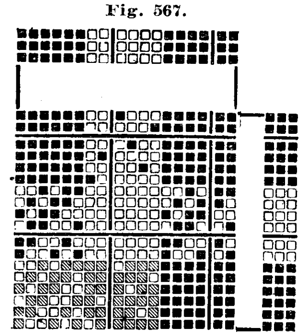


Fig. 567.



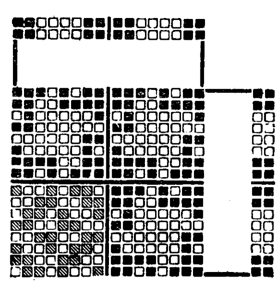


Fig. 561.

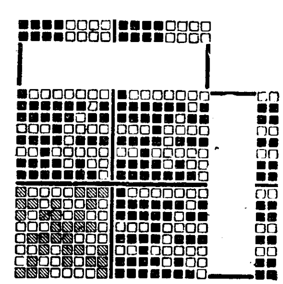


Fig. 562.

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The Identification of Textile Fibers

By Dr. Louis J. Matos

In examining undyed wool fibers of any grade under the microscope, attention should be given to some fibers that appear distinctly white; also in dyed wool some fibers appear to be but slightly stained. These fibers are known as *kemps* and are generally devoid of the characteristic markings that

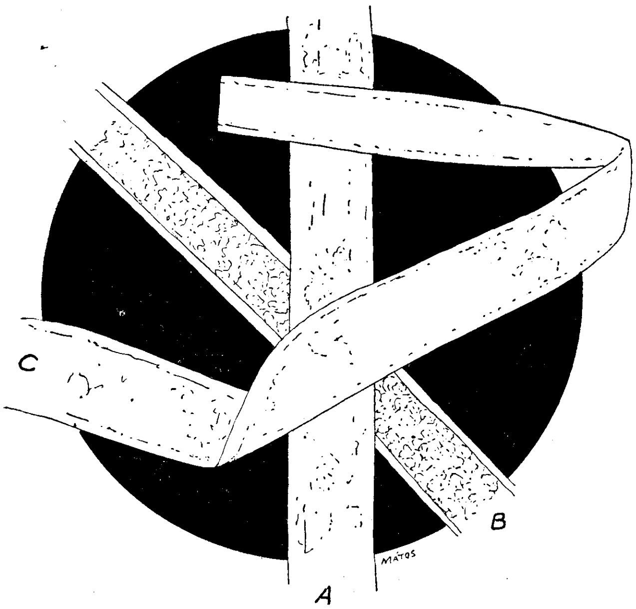

Fig. 25. Kemps. A and B. Roundish kemps, usual form. C-Flat kemp. Scarce.

distinguish the normal wool fibre. Kemps are somewhat horny in texture, appear flat, and are essentially dead fibers. They occur in almost all wools, some wools being distinctly "kempy," while in others such fibers seldom occur. They may be mistaken for vegetable fibers, but the alkali solubility test will confirm the identity, Fig. 25.

A very important chemical test to distinguish vegetable fibers from animal fibers, including natural silk, is to char a small portion of the sample in a dry test tube over a bunsen flame. In the mouth of the test tube place a small slip of red and blue litmus paper, and note the reaction of the fumes on the color of the paper. If the red paper changes to blue the fibers are of animal origin, while if the blue paper changes to red, the fibers are vegetable. Animal fibers contain nitrogen, which during the heating is liberated in the form of ammonia, an alkali, which changes the red paper to blue. Vegetable fibers when treated as above give off acetic acid which changes the blue paper to red.

Natural silk is classed as an animal fibre, although it is a product of the silkworm. There are two commercially important silks, the ordinary natural silk, and the tussah, or wild silk. The chemical reactions of both of these are practically the same, but the microscopic characteristics are widely different and require notice.

Natural silk, in the raw state, always appears as a double filament. Each fiber is cemented to the other with the natural sericin or gum that is secreted by the worm during spinning, Fig. 26. Boiled-off silk appears as a single filament, quite clean and free from any gum. The filament in cross-section is *round.*

Tussah silk, on the other hand, though double, is distinctly flattish in the raw state, and besides shows under a moderately high power microscope striæ running lengthwise, Fig. 27. The size of the filaments of this kind of silk is relatively larger than that of the natural silk.

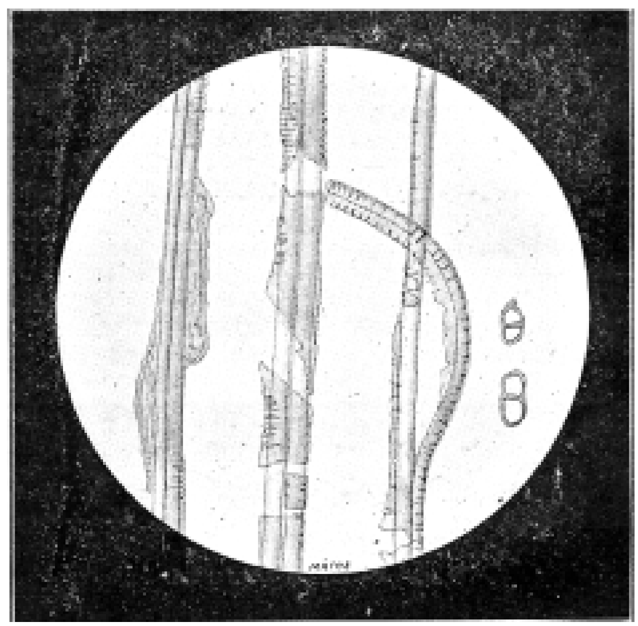

Fig. 26. Raw silk fibres. Here is seen the natural silk gum or "glue" known properly as sericin, binding the double filaments together.

Chemically, the wild silks are not as readily acted upon by reagents as the true silk, and the microscope affords the best means of identification. The parallel chemical reactions of wool and silk are as follows:

Reagents	Wool	Silk
Schweitzer's reagent.	Insoluble after ½ hour immersion.	Dissolves.
30% solution of caustic potash.	Dissolves.	Dissolves.
	On adding a few drops of a 10% solution of nitro-prusside of sodium:	
	turns violet.	No change in color.
Saturated solution of carbonate of soda, without heating.	Wool dissolves, but is precipitated upon adding water.	Silk is not attacked.

(Continued on following page)

THE CONSTRUCTION OF WEAVES.

(Continued from previous page)

Fig. 559. Cross stripe on a 12-leaf filling satin.
Fig. 560. Check on a 6-leaf thousand-square weave.
Fig. 561. Check on 8-leaf radiating twill.
Fig. 562. Check on 8-leaf crepe.
Fig. 563. Check on 8-leaf basket.
Fig. 564. Check on 8-leaf modified basket.

Fig. 566.

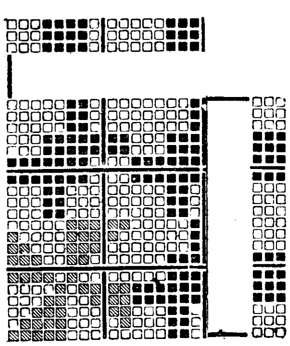

Fig. 565. Check on a 6-leaf thousand-square weave.
Fig. 566. Check on a 10-shaft thousand-square weave.
Fig. 567. Check on a 12-shaft combination weave.