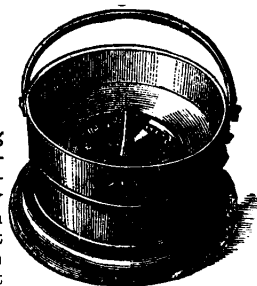


PLATE VI.

CALICO PRINTING MACHINE. (In four colors.)

See page 153.

**Cal'i-co-printing Ma-chine'.** A machine for printing tissues. It was originally designed for cotton prints or calicoes, but has more lately been applied to a very great variety of fabrics of



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wool, linen, silk, and other materials, and of various mixtures of these and others.

The modes of printing are various, but the greater number concern the chemical side of the question and are described on pages 426-429, "*Mech. Dict.*"

Plate VI. shows a machine for printing in four colors which will give a clearer understanding of the construction and operation than one for printing in twenty-four colors, which might have been selected. The latter has a larger central cylinder so as to make it possible to arrange around it a series of twenty-four different impression rollers, each having its own paraphernalia of color-roller, color-trough, doctor, and the necessary means for adjustment.

The plate shows a transverse vertical section of the machine. A, is the frame of the machine on which the various parts are mounted. B is the impression cylinder, and around it are four engraved cylinders, C C C C, which receive their color from felt-covered copper rollers which revolve in the color-troughs, E E E E. Each of the graven cylinders has two doctors, D D, one to remove superfluous ink in advance of the impression being delivered, and the other one to catch and remove any fluff or fibre which might adhere to the cylinder and so be carried into the color. The doctor is a steel blade held by an adjustable screw against the cylinder and having a back and forth movement in the direction of its length.

The plate shows three webs passing around between the impression cylinder and the engraved cylinders. That passing from Q is the fabric to be printed. It passes over several wing rollers and flat surfaces which spread it evenly and remove folds and wrinkles; the tension being maintained by a weighted strap, S, which acts as a brake upon the axes of the cloth roller and prevents its paying out too fast.

Next to the tissue to be printed is a cloth called a doubler (*doublier*) which unrols from R and has the same smoothing devices and brake weight S as previously mentioned.

The doubler lies at the back of the fabric to be printed, and is itself backed by an endless blanket, which is shown coming past the roller T and the spiked roller H; this lies next to the impression cylinder, the doubler and blanket together acting just as the blankets of an ordinary copper-plate printing-press, to form an elastic spongy backing to the fabric and force it into the graven lines from which it absorbs the colors.

Each graven cylinder, as has been said, has its own set of devices, color roller, and trough, and these, with it, are mounted upon a carriage which can be set towards or from the impression cylinder B. A system of gearing, M N O L K, actuates these altogether, but individual adjustments of any one set are made by a screw G, which acts upon its own set.

The cylinder is rotated by a gear-wheel on its shaft, and the graven cylinders by the planetary gears H H H H.

On the right are shown the tissue, with the doubler and the felt proceeding toward the drying chamber.

The Monteith (Glasgow) hydraulic press, for calico printing from flat plates, is shown in article "*Impression sur Etoffes*," Fig. 43, Laboulaye's "*Dictionnaire des Arts et Manufactures*," tome iii., ed. 1877.

Machine for printing in 24 colors. *Ibid*, Fig. 63.

Cf. "*Sketch of the History of Calico*." Paper read before a literary society of Melrose, Mass. "*Boston Journal*," reproduced in "*Scientific American*," xli. 401.

Copper facing calico rolls. "*Iron Age*," xix., June 14, p. 20.

Cf. O'Neill's "*Chemistry of Calico Printing*," etc.

O'Neill's "*Dictionary of Calico Printing and Dyeing*."