[Entered at the Post Office of New York. N. Y., as Second Class Matter.]

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE. MECHANICS, CHEMISTRY AND MANUFACTURES.

Vol. XLIV.—No. 24. [NEW SERIES.] NEW YORK, JUNE 11, 1881. [$3.20 per Annum. [POSTAGE PREPAID.]

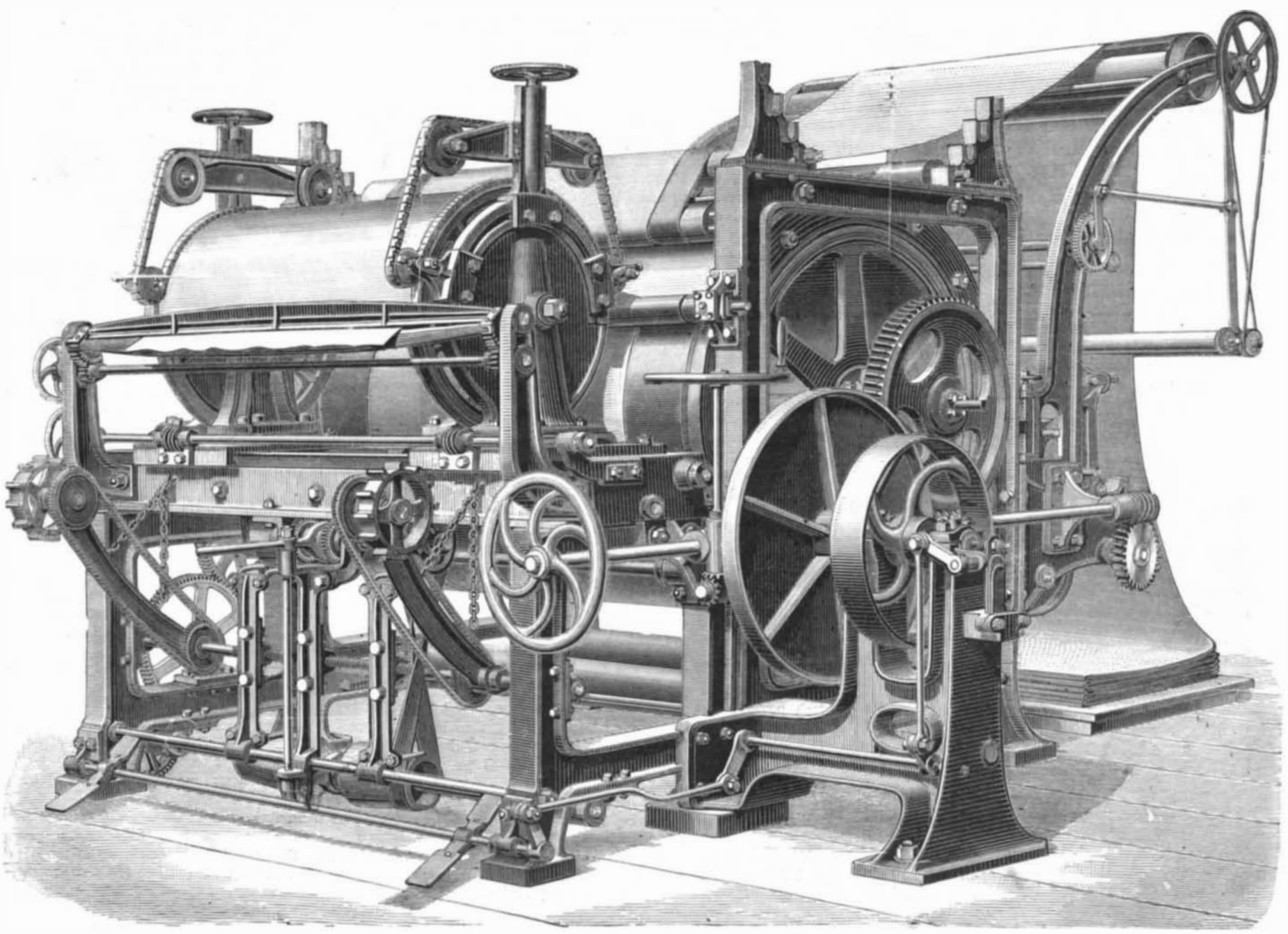
MACHINES FOR FINISHING FABRICS.

In the finishing of woven fabrics there are embraced a number of operations, according as the articles to be treated are of wool, cotton, silk, or a mixture of these, one forming the warp and the other the woof. The nature of the finish also varies, being hard or pliable, lustrous or dull, as the case may be. In addition, some tissues are treated with such materials as starch, dextrine, glycerine, gum arabic, gum tragacanth, etc. Two perfectly distinct operations are quite commonly confounded under the term "finish." The first of these consists in loading the threads with one of the materials above mentioned, and the second is a purely mechanical treatment. Cotton goods and some mixed fabrics of wool and cotton undergo both operations, being first charged with the finishing materials and afterward submitted to mechanical treatment to dry them. Silks of medium quality and articles mixed with cotton receive a small quantity of size, and are afterward passed through the machine. Fabrics of combed and carded wool receive a mechanical finish only. In finishing cotton fabrics the glazing material is applied, and they are then calendered on cylinders heated by steam, which gives them stiffness. But usually mechanical finishing is not resorted to, although it would be a great help. For fine cotton fabrics, however, and for carded and mixed woolen articles, it is indispensable to employ machines, so that the threads of the warp, and especially those of the woof, may be stretched, and thus given the rigidity necessary to make the fabric as stiff as it was in its raw state. The machines used for this purpose are costly, take up much room, and necessitate the employment of experienced workmen. This kind of machine applied to the treatment of fabrics, woolen and mixed, does not give a complete result, and necessitates a complementary operation. The two machines constructed by Messrs. Pierron & Dehaitre, of Paris, France, one of which is shown below, are a great improvement in this respect, and have been very favorably received by manufacturers of woven fabrics. The first of these consists of a large copper cylinder, four to five feet in diameter by four and a half to five and one-quarter feet long, heated by steam.

An endless felt cloth covers nearly the whole surface of the cylinder, with the exception of the places necessary for the fabric to enter and leave the machine. The tension and separation of the felt is effected by rollers. In this machine, as shown in the engraving, the piece of goods is wound on the roller in front. Pressure brakes allow the tension of the fabric to be varied. The fabric, which may be passed over a vaporizer before entering the machine, is kept at its proper width by the tension and pressure of the felt. The steam which forms in the fabric is imprisoned therein, and has the effect of isolating the filaments from each other and of swelling out the threads, thus giving the finished goods greater thickness and greater closeness of texture. The wrong side of the fabric is placed in contact with the cylinder and the right side is turned toward the felt, the result being that the wrong side is made smooth, while the grain or nap of the fabric is brought out on the right side.

By this system such operations may be performed mechanically as are ordinarily confided to special workmen of long experience. When the operator feeds the fabric to the felt machine it often happens that he is not sufficiently careful about the selvages, and when the goods are rolled up the ends are irregular; or, if the fabrics are striped or printed, the lines or designs are wavy, and the goods consequently do not strike the eye of the buyer favorably. There are also in woolen fabrics fulled pieces which have narrower parts, that must be brought to a uniform width, an operation that, by hand, presents some difficulty. In order to overcome these difficulties mechanically, and to obtain results superior to those gained by this machine, the manufacturers have added a widening apparatus, which is represented in the annexed engraving. In this the different parts of the mechanism have been strengthened, and the apparatus is provided with a progressive movement (which allows its speed to be varied), and with various arrangements for rolling or folding the goods. This widening apparatus is composed of two disks, covered with caoutchouc, and of endless chains, designed for holding the fabric in place by pressure. These disks can be fixed obliquely to produce the widening, their distance apart being regulated according to the width of fabric desired. On entering the apparatus the fabric passes between the chains and conducting disks; in turning with the oblique disks it widens, and, on reaching the other end, it enters the finishing machine, between the cylinder and the felt, where it is dried. Goods finished with this new apparatus have very even and regular edges, and the threads of the woof being well stretched and pressed, the stripes or other patterns preserve their original arrangement. In the felt machine, as we have already seen, independent of the widening, a better finish is given the goods than by other methods; and the fabric, on coming from the machine, may be folded, and is then ready for the shop. The effect of the treatment on cotton fabrics is to make them soft to the touch, almost like wool.

The finishing machines made by Messrs. Pierron & Dehaitre work with great regularity; and, as a consequence of the advantages that they possess over other systems in use, they are being rapidly adopted by manufacturers in Europe.



IMPROVED MACHINE FOR FINISHING FABRICS.