Cloth-shear'ing Ma-chine'. A machine for cutting to an even length the filaments of wool drawn out in the process of *teaseling*. It was formerly done by hand.

One cloth-shearing machine consists of a fixed semicircular rack concentric with a cutting-edge called a *ledger-blade*, and a large revolving wheel containing eight small cutting-disks, whose shafts have pinions which engage with the teeth of the semicircular rack, so as to give the cutting-disks a rotary motion on their axes, in addition to their revolving motion with the large wheel. The machine travels over the cloth, or the cloth under the machine, as may be arranged.

Revolving shears are used for shearing off the loose fibers from the face of woolen cloths. For narrow cloths the cylinders are 30 inches long and 2 in diameter; 8 thin knives are twisted around the cylinder, making $2\frac{1}{4}$ turns in the length, and are secured by screws and nuts which pass through flanges at the end of the axis. Formerly the cylinders were grooved and fitted with thin, narrow plates of steel 6 or 8 inches long. The edges of the 8 blades are ground, so as to constitute parts of a cylinder, by a grinder or strickle fed with emery, passed to and fro on a slide parallel with the axis of the cylinder, which is driven at about 1,200 turns in the minute.

In use, the cylinder revolves at about the same rate, and in contact with the edge of a long, thin plate of steel, called the ledger-blade, which has a very keen rectilinear edge, whetted to an angle of about 45°; the blade is fixed as a tangent to the cylinder, and the two are mounted on a swing-carriage with two handles, so as to be brought down by the hands to a fixed stop. The edge of the ledger-blade is sharpened by grinding it against the cylinder itself, with flour, emery, and oil, by which the two are sure to agree throughout their whole length.

The cloth, before it goes through the process of cutting, is brushed, so as to raise the fibers; it then passes from a roller over a round bar, and comes in contact with the spring-bed, which is a long elastic plate of steel, fixed to the framing of the machine, and nearly as a tangent to the cylinder; this brings the fibers of cloth within the range of the cutting-edges, which reduce them very exactly to one level.

This machine has several adjustments for determining with great nicety the relative position of the ledger-blade, cylinder, and spring-bed.

Formerly the cloth was passed over a fixed bed having a moderately sharp, angular ridge; but this was found to cause holes in the cloth.

Broadcloths require cylinders sixty-five inches long, and machinery of proportionately greater strength. In Lewis's patent cloth-cutting machine (English) the cloth is cut from *list* to *list*, or transversely, in which case the cloth is stretched by hooks at the two edges, and there are two spring-beds; the cylinder in this machine is forty inches long, and the cloth is shifted that distance between each trip, until the whole piece is sheared.

Other fabrics, such as carpets, are sheared by the same description of machine.

The lawn-mower operates on the same principle.