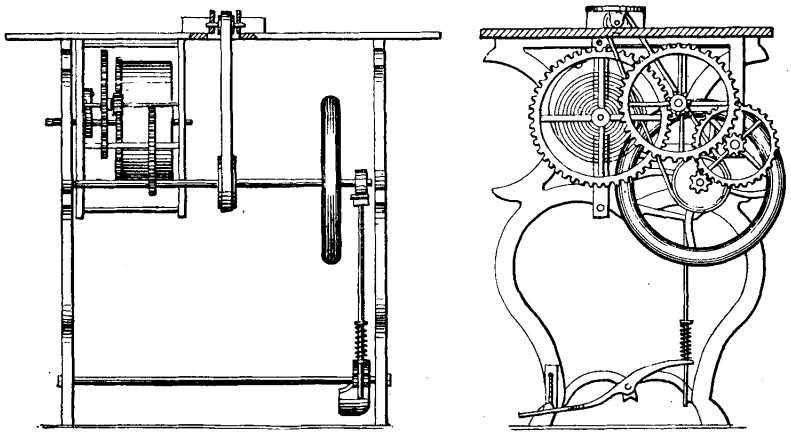
Sew'ing-ma-chine' Mo'tor. A spring or engine attached to a sewing-machine as a driver. The example shows the application of a coil-spring as the moving power for ordinary domestic use. A friction-

Fig. 4883.



Spring Motor for Sewing-Machine.

roller and a brake, governed by a foot-lever, are employed to adapt the motion of the machine to the work. See VARIABLE-SPEED PULLEY.

There are many other modes, besides the one usual in factories, which consists of band connection with the usual shafting driven by an engine. See list, page 2115. See WATER-MOTOR.

The electro-magnetic automotor of M. Cazal may be hidden under a footstool. Four of Bunsen's elements are sufficient for driving an ordinary sewing-machine at a stated cost of sixteen cents per day.

The apparatus itself has an iron pulley with an externally toothed rim, which revolves freely within a metallic ring, toothed similarly to the pulley, but on its internal surface, so that the points of the teeth of the pulley face and approximate to those of the outer circle. An insulated wire runs over the pulley, which thus becomes a magnet whenever an electrical current is run through it, and ceases to be so from the very instant that the current is interrupted.

While the current from the battery is active, each of the teeth of the pulley attracts its opposite on the rim; and if the current were to remain constant, each of these would remain *in situ*, and no motion would be imparted to the wheel; to avoid this, a commutator, which is set in motion by the motor itself, regulates the passage of the electrical current through the wire and renders it intermittent. As soon as the apexes of the teeth have placed themselves into opposition, the current ceases and the teeth on the pulley proceed onward, when a fresh current forces them into a second opposition with the next set on the rim, and so on indefinitely, producing a very satisfactory rotary motion. The power being symmetrically disposed around the axis and in each tooth, there is but little friction on the bearings and no noise produced. The speed can be varied at will, and pressure on a knob or button causes instant stoppage.