The accompanying engravings represent an improved Power Loom invented by Mr. William Sears, of Dover, N. H., who has taken measures to secure a patent for the improvements, which relate to the let off and take up of the warp and cloth beams, and the mode of adjusting and retaining the warp beam in its place. The improvements, by experienced men, have been rendered salable.

Fig. 1, is a perspective view taken from the back part to represent the new parts better.

Fig. 2, is a section showing the ratchet rod which moves in conjunction with the loom, to work both the let off and take up beams, but representing only the warp beam.

Fig. 3, is a section (seen from inside) of the ratchet wheel that moves the take up rollers on beams. The letter notes, refer to the parts on all the figures. A, is the frame of the loom; B, are the fast and driving pulleys of the loom, Q, is a cog wheel on the pulley shaft. It goes with a cog wheel below (not seen) to drive the shaft U, which has came on it, to operate the treadles (not seen) giving them a reciprocating motion, to work the heddles, G G. F F, are the shuttle boxes on the loom. E E, are flexible arms attached to the loom, and to small cranks on the pulley or driving shaft D, to operate the loom. The shaft D, also moves the cloth and warp beams.

Fig. 2.

Having a ratchet rod M, attached on the outside end of an eccentric L, on the shaft D. This eccentric gives a reciprocating motion to the ratchet rod M, the ratchet of which meshes into the ratchet wheel N, the which ratchet wheel moves an axle W, inside of the frame, to operate in union with the let off and take up.

Fig. 3, shows the combination of the ratchet rod and ratchet wheel. The ratchet wheel is fixed on the frame on a short shaft. On the inside of its shaft is a small lever, pivoted at a point, which meshes into a pinion on the axle W, and thus motion is given to the said axle. Thus it will be observed, that the main shaft D, in combination with the loom, moves the ratchet rod M, and the ratchet rod moves the wheel N, and this wheel moves the axle W, which axle has a worm screw f, at the front and a worm e, on the back end, the former driving the pinion G, on the cloth beam axis a 3, and the latter the cog wheel K on the axis of the covered roller 1, in figs 1 and 2. Figures 2 and 3, show the machinery and gearing, which from the eccentric L, on the let off shaft D, moves the warp and cloth beams, and the arrangement will be clearly understood if the reader turns in his mind, the shaft W, fig. 3, and joins it with the shaft fig. 2, reciprocating the rollers 1, 2, and 3, and leaving out the duplicate wheel W. The journals of the warp beam revolve in vertical slots which allow it to lower as the warp is given off, and at it is lowered on.