

Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

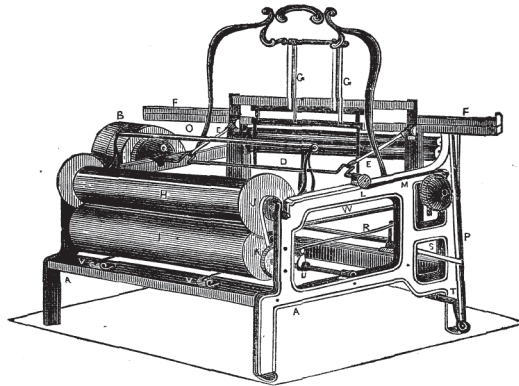
Vol. 4.

New York, August 18, 1849.

No. 48.

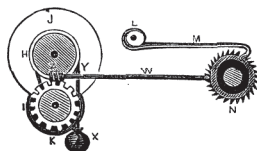
THE
Scientific American.
THE
BEST MECHANICAL PAPER IN THE WORLD.
CIRCULATION 12,000.
PUBLISHED WEEKLY.
At 128 Fulton Street, New York (Sun Building,) and
18 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.
Barlow & Payne, Agents, 59 Chancery Lane, London
TERMS—\$3 a year—\$1 in advance, and
the remainder in 6 months.

IMPROVED POWER LOOM.—Figure 1.



The accompanying engravings represent an improved Power Loom invented by Mr. William Stearns, 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 considered *valuable*.— Fig. 1, is a perspective view taken from the back part to represent the new points better.— Fig. 2, is a section showing the ratchet rod which moves in conjunction with the lathe, 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 or beams. The same letters, refer to like 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 gears with a cog wheel below (not seen) to drive the shaft U, which has cams 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 lathe. E E, are flexible arms attached to the lathe, and to small cranks on the pulley or driving shaft D, to vibrate the lathe. This shaft D, also moves the cloth and warp beams. This is done by

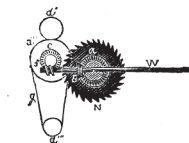
FIG. 2.



having a ratchet rod M, attached on the outside end to 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 unison with the let off and take up. Fig. 2, shows the combination of the ratchet rod and ratchet wheel. The ratchet wheel N is fixed on the frame on a short shaft. On the inside of its shaft is a small bevel pinion α fig. 3, which meshes into a pinion δ , 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 lathe, moves the ratchet rod M, and the ratchet rod moves the wheel N, and this wheel moves the axle W, the which axle has a worm screw f , at the front end and a worm z , on the back end; the former driving the pinion C, on the

cloth beam axis b 2, and the latter the cog wheel K on the axis of the covered roller I, in figs. 1 and 2. Figures 2 and 3, show the machinery and gearing, which from the eccentric L, on the lathe 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, reversing the rollers d 1, d 2, and d 3, and leaving out the duplicate wheel N. The journals of the warp beam revolve in vertical slots which allow it to lower as the warp is given off, and as it is moved on-

FIG. 3.



ly by I as it revolves, its motion must be uniform. The ratchet that moves the wheel N, moves the said wheel one notch for every stroke of the lathe, therefore the warp and cloth beams being first graduated in their required traverse, the lathe may be said to move the let off and take up, exactly one pick every stroke. When the number of picks in the inch is required to be changed, the ratchet wheel N must be changed to correspond.— Otherwise the cut off and take up continually coincide in the equal and exact motion required for each. X is a weight hung on the strap Y, fig 3, to hold down the warp beam. J, is the rim on the beam, and g , fig. 3, is a band which moves the cloth beam or roller. The cloth passes over d 1, then extending nearly around d 2 and is wound up on d 3. P, is the picker staff, they have coiled springs T, at the bottom, inside, to throw them back—a good arrangement. O is a swinging roll, the offices of which is to allow the warp beam to be adjusted, for any cause, by simply swinging it forward. The warp passes over this roll. V V, are the treadle joints. R, is the vibrating rod that moves the picker staff—by a strap S, passing around a small roll (not seen).

To those skilled in the art, the merits of this invention are apparent; although a power loom is one of the most difficult machines to describe, we believe that tolerable correct idea of one, will be acquired, by a close attention to the above description. More information respecting rights, &c. may be obtained by letter, post paid, to Mr. Stearns; and there is no doubt but his invention will soon find its way into general favor.