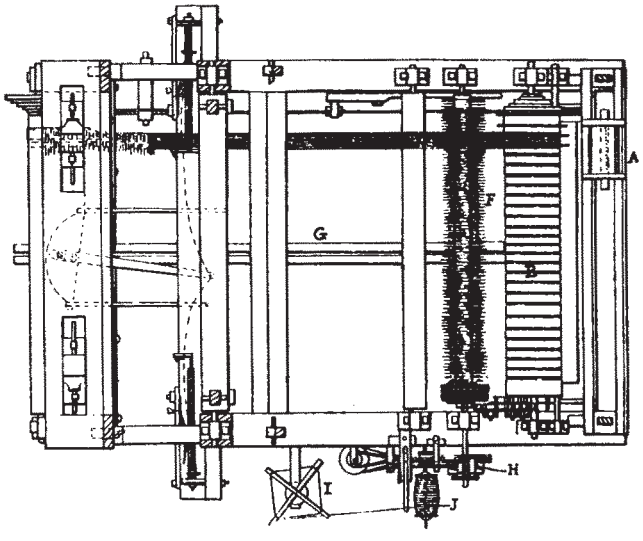
Chronological Textile Events.

(*Continued from page x, October issue.*)

1816. The first Loom Temple patented in the United States by Ira Draper, of Weston, Mass., it being the most important feature to a loom at the same time invented by him. This temple, containing a star wheel, was the pioneer in this line, and followed the old wooden temples that were used on the hand looms at that time, power looms having just come into use about that period.

Draper, in connection with Lowell, Jackson, Moody, Jenks, and Mason, was one of the pioneer inventors of weaving machinery in the United States. A son of Ira Draper, named James, as recorded by an advertisement in the first number of the Boston Transcript, was later on in the business of introducing loom temples. Another son of Ira Draper, the late George Draper, father of the present Geo. A. Draper, Treasurer of the Draper Company, Hopedale, Mass., and Eben S. Draper, the Agent of that concern, made additional improvements in these star wheel temples, in the 40's, and up to the advent of the Dutcher temple with cylindrical roll, patented first in 1851, and with the important patent on reciprocation, patented in 1852, these star temples had a large share of the market. There were incidentally a few types of hooks used, and also some jaw temples; jaw temples had one peculiar failing, they always let go at the time that they were needed the most, that is, when the lay was at the point nearest the breast beam, beating in the filling.

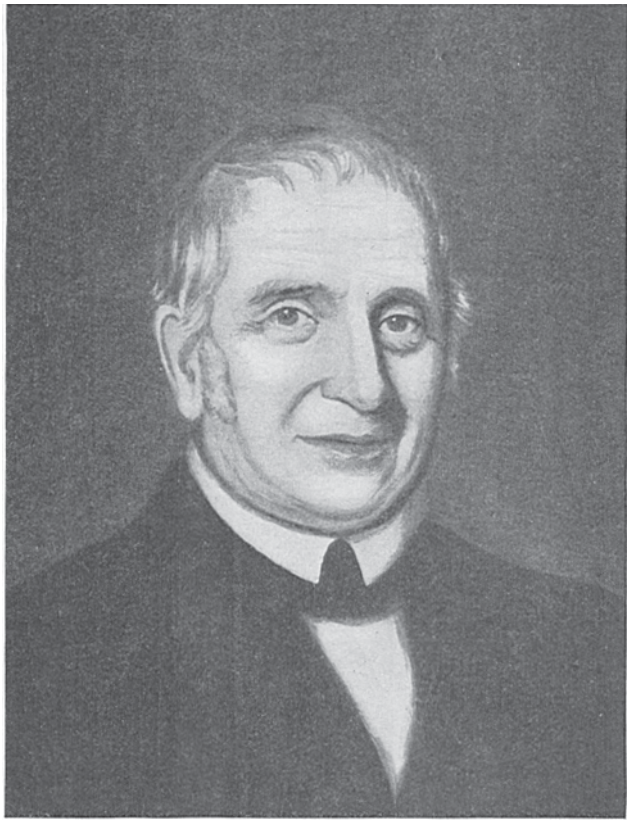
The general construction of the loom patented by Draper in 1816 will be readily understood from



Top Plan View of "Loom" invented by Ira Draper, 1816.

the two illustrations given, showing its side elevation, and a top plan view of it.

Among interesting features, besides its star wheel temple (and to which we will refer later on, more in detail) was an arrangement provided for the changing of the shuttle boxes, *i. e.*, to place them nearer together for narrow cloth, or



Ira Draper, Inventor, 1816.

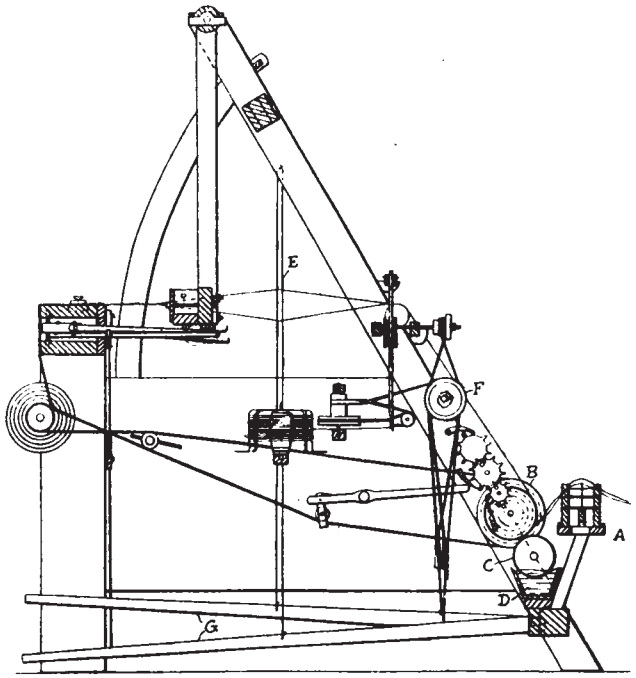
farther apart as may have suited the width of the fabric woven, or the fancy of the weaver. The shuttle boxes were also provided with a spring, to stop the recoil of the shuttle on striking the end of the shuttle box.

Other improvements in the construction of this loom were the means of increased power for throwing the shuttle, and the method observed in winding the warp yarn on its beam regularly, *i. e.* to keep it more separate than was commonly done.

A rather interesting feature of this loom at that time, was the arrangement for taking the lease for the warp, the device employed acting at the same time as a detector for locating broken warp-threads at the warping. This device is shown at *A* in both illustrations. Two narrow pieces of metal were drilled with holes the size of a knitting needle and about four times that distance apart. These stripes of metal were made fast in a frame horizontal and parallel to each other and a few inches distance apart, so that the holes were over each other, permitting wire jacks to play perpendicularly in them. Above these metal pieces and parallel to them, two wires were

stretched, one on each side. Wire jacks were made by turning the end of a piece of wire to form an eye, for the thread to pass through, the other end being cut long enough to reach from the extended wires to a little below the under strip of metal. One of these jacks was then put into each hole. A board was provided, having holes drilled in it, equal distances apart to every two jacks. This board was then pressed beneath the points of the jacks, in turn raising every other one for which no hole was drilled in the board. Every other warp-thread was then passed through the eye of the jacks raised, after which the board was released, and adjusted to raise the other set of jacks, the eyes of which were then in turn threaded with the remaining warp-threads in the section. These two alternate sheds, when so required, produced the lease in the manner used to-day. To measure a certain length of warp yarn wound on the beam, a tally wheel was supplied to the loom.

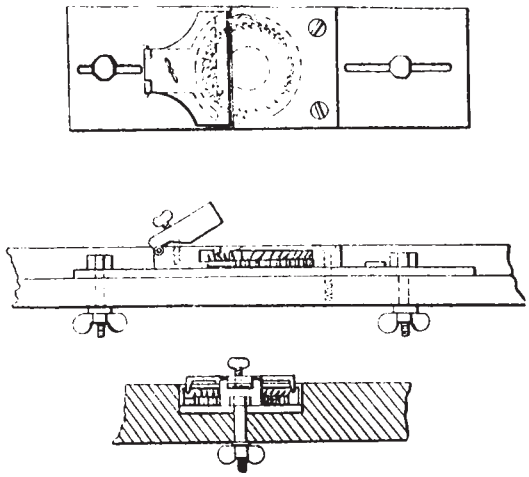
To size the warp yarn previously to reaching the harness, the yarn roller *B* was provided with a cloth covering. Below this roller, and in contact with it (see side elevation) was placed a similarly covered roller *C*, partly submerged in the size contained in vessel *D*, and with which the yarn was coated to permit perfect weaving. Both rollers were adjustably connected to each other so that, when roller *C* turned in the size, in its revolution it squeezed the proper quantity of size onto the yarn roller *B*, to size the yarn.



Side Elevation of "Loom" invented by Ira Draper, 1816.

Between the latter and the harness *E* (see top plan view) was placed a circular brush *F*, the action of which laid protruding fibres on the yarn to the body of its respective threads. This brush *F* was turned through suitable connections, by the action of the treadles *G*.

The axis of brush *F* projected beyond the outside of the loom frame, to receive a whirl *H*, which through proper connections wound the yarn coming from the swift *I* onto spool *J*, for use in the loom shuttle.



Detail Views of the "Star Wheel Temple" invented by Ira Draper, 1816.

The temples (see detail drawings given) instead of being movable and put above the cloth to stretch it, as was done in common looms of that period, in this loom was put under the cloth and screwed to the breast beam. Each temple consisted of a circular metal ring, having sharp teeth on the flat of the ring, which stood angular to its surface and did not take hold when the ring was turned one way, but entered very easily when the ring was turned the other way. These teeth were angularly bent forward, from a vertical position. A cap was put over this ring and covered more than one-half of it. This cap was screwed to the bottom, which had two flat lips with a groove in each lip, for receiving a screw so that the lips could be screwed firmly on the breast beam. To be capable of being easily altered, there was likewise a groove in the breast beam, parallel to its edges, through which the same screws entered which held the temple, having nuts or thumb screws below, which held the temple-cases in any place or position which the width of the cloth or the contraction of its filling required. On the inside of the case was a pawl spring to hold on teeth on the circumference of the temple and secure its rotative motion. These temples with the cases were let into the upper board of the breast beam, so that the cloth had to pass over them evenly and smoothly, the uncovered teeth of the temples being placed toward the side of the loom. To force the cloth down upon the teeth, a clasp or cover was hinged on a projecting lip, which had a circular gutter under which the teeth of the temple turned easily, without being touched. There was also a screw in this lid toward the hinge, by which it could be held down.

To use these temples, they were placed at the distance to which the cloth woven had to be dis-

tended. The selvage was then put on the teeth and the clasps screwed down, to hold it there. The weaving was then started, and as cloth was produced and drawn towards the breast beam, it passed under the clasps and was seized by the oblique teeth, compelling the temple to turn, and thus stretch out and hold the last woven part of the cloth up to its width in reed.

Jefferson, as the head of a large political party (being misrepresented by the opponents of protection with reference to a speech in 1785) Jan. 9, 1816, stated, that his opinions in view of the altered circumstances of the country and the policy of foreign nations, were as follows: "We have experienced what we did not then believe, that there exists both profligacy and power enough to exclude us from the field of interchange with other nations; that to be independent for the comforts of life, we must fabricate them ourselves. We *must now place the manufacturer by the side of the agriculturist.* The former question is suppressed or rather assumes a new form. The grand inquiry now is, shall we make our own comforts, or go without them at the will of a foreign nation? He, therefore, who is now against domestic manufactures, must be for reducing us, either to a dependence on that nation, or to be clothed in skins, and live like wild beasts in dens and caverns. I am proud to say I am not one of these. Experience has taught me, that manufactures are now as necessary to our independence as to our comfort; and if those who quote me as of a different opinion, will keep pace with me, in purchasing nothing foreign, when an equivalent of domestic fabric can be obtained without regard to price, it will not be our fault if we do not have a supply at home equal to our demand, and wrest that weapon of distress from the hand which has so long wantonly wielded it."

The power loom introduced first by Seth Bemis in his mill at Watertown, Mass., for weaving cotton sail cloth.

A new power loom to be worked by steam or water-power was invented and put in operation in Boston, by E. Savage. It was of simple construction, and was adapted for weaving cloths, three yards wide, and the largest cotton sheets without a seam, etc.

A patent was granted July 25th, to Cyrus Shepherd and J. Thorpe, of Taunton, Mass., for an upright power loom which was already in operation in the woolen mill of Mr. Shepherd, at Taunton. The same parties were also granted, October 14, a patent for a socket bobbin-winder, which was considered the best winding machine in use. It is related by the late Mr. Appleton, that while bargaining with Mr. Shepherd for the right of using the winders on a large scale, it occurred to Mr. Lowell or Mr. Moody, of the Waltham Factory, that he could spin the cops direct upon the bobbin, which cut short the process of spinning and resulted in the last great improvement in connection with power loom weaving, *i. e.*, in that of spinning the filling directly on the cops without the process of winding. Mr. Moody took a patent (March 9) for winding spool-yarn.

Jeptha A. Wilkinson, of Otsego, N. Y., patented (July 3) a machine for making loom reeds. This valuable machine, invented in 1813, was first successfully put in operation by him in the manufactory of Sharp, Roberts & Co., Dean's Gate, Manchester, England. In 1823, the inventor returned to America and established a manufactory of reeds in Providence, R. I., which, with the machine, he sold the same year to Arnold Wilkinson, by whom the machine was much improved.

Cotton looms built by Alfred Jenks, Holmesburg, Phila., for Joseph Ripka, Manayunk, Phila.

The Philadelphia Society for the promotion of National Industry, composed of ten influential members, was formed in that city. Its object was to advocate the protection of national industry in general, but more particularly for manufactures perishing for want of protection. It exerted considerable influence upon the public mind during the next few years, chiefly through a series of published addresses, most of them from the pen of Matthew Carey, who, in this connection, first appeared as the ardent and uncompromising advocate of protection, and who for several years labored in behalf of the American manufacturer with a zeal and a disinterestedness seldom equalled.

The Fly-frame was this year introduced into England, from the United States, and was afterward patented there by J. C. Dyer, an American.

M. I. Brunel invented and patented in England, the first circular knitting machine.

Warp pearlings introduced in England by Fowkes, of Leicester, and Kirkman, of Nottingham.

Plain ground net invented in England by Aaron Hill.

Calendering introduced into the manufacture of linens in Scotland.

Power applied to the lace frame (in England) by John Lindley.

The family of Frank Cheney, Sr., of Cheney Bros., silk manufacturers, South Manchester, Conn., announce that they will offer to the town a large section of land for a public park. This tract was laid out and developed for a park at great expense some years ago by Frank Cheney, Sr. Shrubbery and trees were set out and the place made attractive, the whole expense of maintenance being borne by the Cheney family. It is stated that with the park will be given a sum of money, the income from which will materially assist in its up-keep.

A late German process has for its object to prevent tenderness and rotting of silk fibres caused by loading, treating them in a 10 per cent solution of formic ammonia. Experiments have shown that silk, loaded 100 per cent of its weight with zinc, will be more than twice as strong after the above described chemical treatment.