For the Scientific American.

Damask Weaving.

(Concluded from our last.)

The Irish damask table cloth manufacturers put four threads in the mail generally, and give four threads of weft to the change of pattern, changing the pattern twice for once over the ground treadles. By this means a finer point is obtained, and, of course, a nearer approach is made to the full harness principle; for, it is evident, that if there were eight threads of weft instead of four threads given to the change of pattern, the point would be coarser in the same proportion.

In looms mounted for weaving extensive patterns, codsiderable economy is also obtained by introducing what is called single and double mounting. In the single mounting, every mail, in each part, has a cord, and needle to itself, and therefore can be raised independent of any other; the double mounting is merely certain portions of the border or body gathered. By using these a vast deal of expense is saved in drawing and designing, particularly in extensive patterns.

For example, suppose a damask table-cloth to be woven containing 63 porters of warp and 5 threads in each mail, then we have

126 porters of warp;
40 threads in one porter;

5)5040 threads;

1008 mails in the whole web.

Now, these may be divided into parts, thus:—

For one side border,	18 designs,	single	
For the body of the web,	26 do.	double;	
do. do.	12 do.	single;	
do. do.	26 do.	double;	
For the side border,	18 do.	single;	

100 designs;
10 mails in a design

1000 mails;

which deducted from the above given quantity of warp, leaves 8 mails. or 20 dents of the reed for selvages. Here the designer may draw any pattern he pleases for the borders to the extent of 18 designs, or 180 cords of the figuring machine; in the body of the table cover, he may also draw any pattern he pleases on the 12 designs in the centre, as that part is single mounting, but it must be such as will join with the 26 designs of double mounting on each side, so as to form all the patterns into one complete group. In this example the tie of the harness will be 180 cords single, of the figuring machine, of the borders: 260 cords double, and 120 single, for the body, making in the whole 560 needles for the Jacquard.

Patterns for damask table-cloths are designed on ten by ten paper, and may be woven square, by adapting the number of picks on each change of pattern to the intended thickness of the cloth. Table-cloth patterns are generally composed of coats of arms, groups of flowers, landscapes, birds, trees, &c.

Damask harnesses are sometimes mounted for the draw loom; sometimes on the Jacquard plan; and sometimes the principles of both these are combined, as, for example. when a coat of arms is to be woven in the centre of a table-cloth. In the last case, the borders and part of the body are commonly mounted for the Jacquard machine, while the part for working the armorial bearings is adapted to the draw-boy (see draw loom) In large mountings, however, there are frequently four or more simples, and sometimes four or more pulley-boxes, these boxes being placed in the most convenient position for the weaver; and when any of the simples are not employed, they are tied up and laid aside until wanted in their turn.

It may be further remarked, that, in weaving damasks, in general, when any portion of the harness cords are raised by the Jacquard to form a flowering shed, these cords must be kept raised by the machine until the proper number of picks to the card is given.

The common damask shawl has uniformly four threads in the mail; it is woven with an eight leaf setin tweel, and it may be woven with four or eight picks of weft to the change of pattern. The warp and weft of this class of goods are, for the most part, of different colors.

GILROY.

Preservation of Food.

A writer in the Westminster Review proposes to extend the principle of hermetically sealed vessels for preserving grain, to the construction of corn store houses and air tight cylinders of transport ships.

He says "in direct opposition to these principles are the granaries of Great Britain and other countries constructed. Their site is generally the bank of a river, or the sea-side. They are built of many floors, at a vast expense. They are provided with many windows, each floor being the height of a man, yet not permitting more than twelve to fifteen inches depth of grain on each floor for fear of heating, unless in the case ot very old samples. Men are continually employed to turn over the grain, to ventilate it, and clear out the vermin: and the weevil is naturalized in every crevice, as surely as bugs in neglected London beds, or cockroaches in West India sugar ships. It is the admission of air that permits this evil, that promotes germination, that permits the existence of rats and mice. In the exclusion of air is to be found the remedy.

The practicalization of this is neither difficult nor costly; on the contrary, close granaries might be constructed at far less proportional cost than the existing kind. They might be made under gronnd as well as above ground, in many cases better. They might be constructed of cast iron like gasometer tanks; or of brick and cement; or of brick and asphalte, like underground water-tanks. It is only required that they should be air-tight and consequently water-tight A single manhole at the top, similar to a steam boiler, is all the opening that is required, with an air-tight cover. The air-pump has long ceased to be a philosophic toy, and has taken its place in the arts as a manufacturers tool; and no difficulty would exist as to that portion of the mechanism. Now, if we suppose a large cast iron or brick cylinder sunk in the earth, the bottom being conical, and the top domed over; an air-pump adjusted for exhausting the air, and an Archimedean screw-pump to discharge the grain, we have the whole apparatus complete. If provide for wet grain, a water pump may be added, as to a leaky ship. Suppose now, a cargo of grain, partly germinating, and containing rats, mice, and weevils, to be shot into this reservoir, the cover put on and luted, and the air-pump at work, the germination would instantly cease, and the animal functionaries would be suspended. If it be objected that they will revive with the admission of the air, we answer, that the air need not be admitted, save to empty the reservoir. It it be contended that the reservoir may be leaky, we answer so may a ship, and if so, the air-pump must be set to work just as is the case with a water-pump in a leaky ship.

The writer further proposes to construct ships to carry corn on the same principle, viz—fill them with metal-lined air-tight compartments, like the huge tanks in a whale ship. The air could be exhausted with an air-pump, and this even new, undried grain might be carried and delivered across the sea undamaged. He says, "The corn brought down the Mississippi to New Orleans, or by canal or rail to New York, would be discharged into the airtight magazines of the vessel. On arriving at Liverpool, or Birkenhead, or Harwich, the Archimedean screw-pump would discharge the grain into close wagons on a railway, on the edge of the quay. These wagons might be rendered measures of quantity, being all made to hold a given number of quarters; and thus all labor in measuring and expense would be saved. The wagons so loaded in bulk, and without the expense of sacks, would discharge their contents into granaries, where the corn might remain secure against all detriment for any number of years the owner might desire, with the minimum expense in transit and stowage. The wagons should be constructed with a hatch at top and a discharge pipe below."

There are thousands upon thousands of bushels of grain destroyed every year just on account of unscientifically constructed storehouses. If grain is well kiln dried and kept free from moisture it will be as good at the end of ten years as it was when first raised. This is a subject which should engage public attention as it relates to the welfare of man and the commerce and agriculture of all nations.

Rotary Pumps.

Rotary pumps have never retained a permanent place among machines for raising water: they are as yet too complex and too easily deranged to be adapted to common use.—Theoretically considered they are perfect machines, but the practical difficulties attending their construction have hitherto rendered them (like rotary steam engines) inferior to others. To make them efficient, their working parts require to be adjusted to each other with unusual accuracy and care, and even when this is accomplished, their efficiency is, by the unavoidable wear of tho esparts, speedily diminished or destroyed: their first cost is greater than that of common pumps, and the expense of keeping them in order exceeds that of others; they cannot, moreover, be repaired by ordinary workmen, since peculiar tools are required for the purpose—a farmer might almost as well attempt to repair a watch as one of these machines. Hitherto a rotary pump has been like the Psalmist's emblem of life: "Its days are as grass, as a flower of the field it flourisheth, the wind [of experience] passeth over it, and it is *gone*." Were we inclined to prophecy, we should predict that in the next century, as in the present one, the cylindrical pump will retain its pre-eminence over all others; and that makers of the ordinary ones, will then, as now, defy all attempts to supersede the object of their manufacture. —*Ewbank's Hydraulics.*

The Watch.

I have now in my hand, a gold watch which combines embellishments and utility in happy proportions, and is usually considered a very valuable appendage to the person of a gentleman. Its hands, face, and chain, and case, are the chased and burnished gold. Its gold seals sparkle with the ruby, the topaz, the sapphire, the emerald. I open it, and find that the works without which this elegantly furnished case would be a mere shell, those motionless hands, and those figures without meaning, are made of brass. I investigate further, and ask, what is the spring, by which all these are put in motion, made of? I am told it is made of steel. I ask what is steel? The reply is, that it is iron which has undergone a certain process. So then, I find the main spring, without which the watch would be motionless, and its hands, figures, and embellishments but toys, is not of gold—that is not sufficiently good; nor of brass—that would no do—but of iron. Iron is, therefore, the only precious metal; and this watch an emblem of society. Its hands, and figures which tell the hour, resemble the master spirits of the age, to whose movements every eye is directed. Its useless but sparkling seals, sapphires, rubies, topaz, and embellishments are the aristocracy. Its works of brass are the middle class, by the increasing intelligence and power of which the master spirits of the age are moved; and its iron mainspring shut up in a box, always at work, but never thought of, except when it is disordered, broke, or wants winding up, symbolically, the laboring class, which, like the main spring we wind up by the payment of wages, and, which classes are shut up in obscurity, and though constantly at work, and absolutely as necessary to the movement of society, as the iron main springs is to the gold watch, are never thought of, except when they require their wages, or are in some want or disorder of some kind or other. —*Edward Everett.*

Singular Manner of Choosing a King.

The people of Bearn, an ancient province of the Pyrenees, in the year 1183, desirous of having a sovereign of the blood of their last monarch, sent a deputation to his sister, to ask for one of her twin children. The request being granted, the deputies had their choice. The infants, at the moment, both slept. One had his hands closed, the other his open. The deputies imagined they saw, in the latter attitude, an indication of a noble and generous character. They immediately chose him: and this monarch in his after age acquired the title of Gaston, the Good.

Lightning Rods.

Instances have been known of masses of wood struck by lightning, without apparent damage externally, but which had ignited the substance inside, and burst into a flame long after the accident. This happened on board a Neapolitan line of battle ship, in the Mediterranean The ship had returned from sea and anchored, after having been struck with lightning; all of a sudden the mast burst out into a flame Doubtless the same is sometimes the case with the cargo. Frequently the poles of the compass have been found completely reversed.

Chain conductors of copper and iron, have been used as a preventive. They are usually set up on the approach of a thunder storm, but often too late. A better plan has been contrived. It consists of two thicknesses of short copper, laid one upon the other, in lengths of about four feet. They are riveted together at the points of junction, so as to form an elastic and continued line; this is then inlaid at the after part of the mainmast, and secured with copper nails. In the hull, the conducting line is made perfect and attached to the keelson. A square-rigged vessel afloat was fitted with this apparatus, and a powerful electric discharge was communicated to the extreme point of the main top gallant mast. It passed along the conductor, and out of the vessel, without injuring any thing, but, continuing its course several yards, it exploded some gunpowder in a boat, placed on purpose to test the actual presence and power of the electric fluid.

Pins.

A dozen years since, all the pins used in this country were imported. Now, none are imported, except a few German pins for the German population of Pennsylvania. This wonderful change has been produced by a concurrence of circumstances—the most prominent of which was the invention, by Mr. Samuel Slocum, now of Providence, of a pin-making machine far superior to any then in use in England. Of all the Pin Companies which have been established or attempted in the United States, only three are known to exist at present, viz: the American Pin Company, (which has works both at Poughkeepsie and Waterbury, Conn.,) the Howe Company at Derby, Conn., and Messrs. Pelton, Fairchild and Co. of Poughkeepsie.

A part of the pins of the American Pin Company are made of American Copper, obtained on the borders of Lake Superior.

Life's Pendulum.

At every swing of the pendulum a spirit goes into eternity. The measure of our life is a hair-breadth; it is a tale that is told; its rapidity is like the swift shuttle or the transitory rainbow, or the dazzling meteor: it is a bubble; it is a breath. At every swing of the pendulum a spirit goes into eternity. Between the rising and the setting sun 42,000 souls are summoned before their Creator. True, as well as beautiful, are those lines of Mrs. Hemans—

'Leaves have their time to fall,
And flowers to wither at the North wind's breath,
And stars to set: but all—
Thou hast all seasons for thine own, O Death.

Michael Angelo a Scholar through Life.

Michael Angelo dedicated himself, from his childhood to his death, to a toilsome observation of nature. The first anecdote recorded of him shows him to be already on the right road. Granacci, a painter's apprentice having lent him, when a boy, a print of St. Anthony beaten by devils, together with some colors and pencils, he went to the fish-market, to observe the color and form of the fins and of the eyes of fish. Cardinal Farnese one day found him when an old man, walking alone in the Coliseum, and expressed his surprise at finding him there solitary amidst the ruins: to which he replied "I go yet to school that I may continue to learn." And one of the last drawings in his portfolio is a sublime hint of his own feeling; for it is a sketch of an old man with a long beard, in a go-cart, with an hour-glass before him: and the motto, *Ancora imparo*, "I still learn."