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Weather Prediction.

Although we have no faith in the predictions of Thomas, the almanac maker, or any of the weather prophet fraternity, we will publish the information of a correspondent —J. Royal, of White Rock, Ill.—who professes to be able to foretell the weather one year in advance for any locality where there is an almanac calculated. Here is the prophesy:— "The first half of April will be wet, the last half fair; the first week in May will be wet, the balance, fair; the first half of June will be fair, the last half changeable; July will begin and end with a few days of changeable weather leaving the middle of the month dry; August will have a great many wet days; September will set in fair, but the balance of the month will be changeable, the last part being wettest; October, changeable, gradually increasing to wetness; November, like the preceding, only commencing fairer and ending wetter; December, fair weather." On this, we are told we may rely, with the exception of September, where there has "to be added the extra stormy weather caused by the sun crossing the line." This truly depends on the prevailing winds at the time; if the winds be southerly, the month will be wet; if northerly it will be as dry as if the sun were at his extreme distance from the line.

To Waterproof Fabrics.

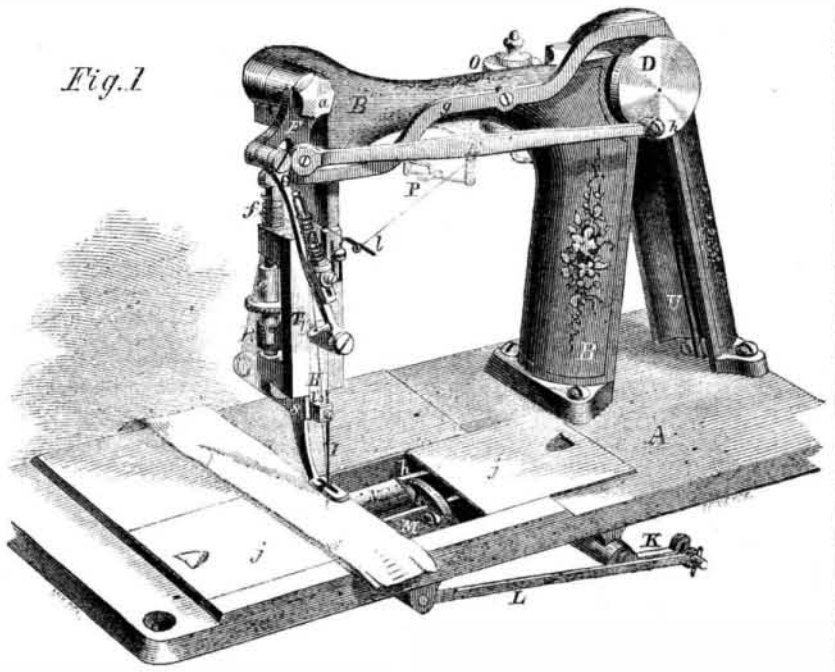
Take a pound of glue and one pound of tallow bar soap and dissolve them in five gallons of water. Now bring the water to the boiling point, and add carefully and slowly one and a half pounds of alum. When this is all dissolved, cool down the liquid to about 130° Fah. and plunge the articles to be prepared into it, then hang them up to dry. When they have become quite dry, they should be washed in soft water and dried a second time. Such articles should not be used for wearing apparel, excepting for loose tunics to be put on in rainy weather. Any person may thus prepare at little expense a coarse cloth water-proof fabric.

Breaks in Levees.

In a paper recently read before the New Orleans Academy of Science, by Dr. R. Cartwright, he attributes the breaks in the levees of that city to the burrowing of crawfish. He says these animals build their houses near the base of the levee and next the river, for the convenience of catching fish, shrimps, &c. When the water comes up against it, they burrow through the levee, and go on the other side, to prevent being drowned. The most effectual method to drive them away is to throw on the base of the levee the crushed stalks of the sugar cane, called *bagasse*.

BURNET AND BRODERICK'S SEWING MACHINE.

Fig. 1



The sewing machine is now a peice of mechanism of such extended utility and application, that every contribution to its improvement or simplification is to be regarded with due attention and respect, and each invention which has for its object the more perfect action and the production of better work deserves to be examined impartially and with care.

The illustrations of the present article show a perspective view, Fig. 1, and a front end view, Fig. 2, of a new sewing machine, invented by S. S. Burnet and W. Broderick, of Chicago, Ill., and patented November 30th, 1858, in following the description of which, we ask the reader to remember the above remark.

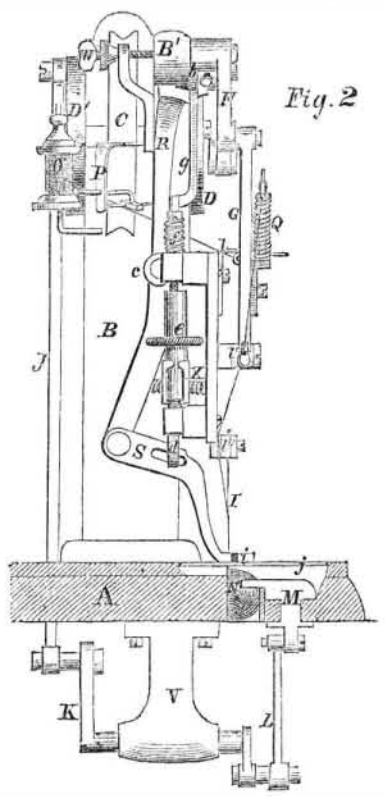
Upon the table or bed, A, a frame, B, and attached arm, B′, is secured. These carry the feed motion and needle and their operating parts. Through the top of B, a horizontal bar is placed carrying a belt wheel, C, and two crankwheels, D D′, the crank wheel, D, serving also as a cam by a small depression being formed at *h*. To D is attached an arm, E, which as D is rotated gives a back and forth motion to the rocker, F, that is attached to B′ by a pin, *a*, and F communicates its motion through a link, G, to the needle carrier, H, and needle, I. H moves in guides, T. The motion of the needle is thus obtained by means the most simple and effective.

To D′ is secured a link, J, that passing through a slot in A, operates the rocker, K, suspended by the bearing, V, under A, and K gives the proper motion to another link, L, that moves the slide, M, in which the shuttle, N, is placed; the shuttle moving in a race-way, *h*. By these means the shuttle motion is obtained.

The thread coming off the spool, O, passes between two thin flat metal plates in P, and a slide on them brings them closer together, or allows them to be further apart to regulate the tension; from P it passes through a small loop, *l*, thence through an eye or forked wire on G, where the tension is properly raised at different portions of the stitch by a spiral spring, after which it passes to the needle, being guided on the way by the eyes, *l′ l″*.

The feed motion is obtained in the following manner; the feed bar, R, is pivoted to the frame at *c*, and it is moved by a small cam, *b*, on F, which forces it forward, and by means of a feed plate, S, the serrated end of which, *i*, moves the cloth. The feed bar and plate are forced back by the spring, X. In S, is a slot that works over a pin in an arm,

Fig. 2



d, that can be lengthened or shortened by the double screw, *e*, a little nut on the bottom of which prevents its moving by the motion of the machine, and a spring, *f*, on the upper end of the device elevates the portion, *i*, from the cloth, as S is being drawn back, and at the same time the end of *g*, which passes over the indentation, *h*, on D, allows this to be done; when *i* is pushing the cloth forward or is at rest, the lever, *g*, keeps it in contact with the cloth, by being all the while on the largest diameter of D. The plates, *j*, serve to cover up the shuttle and race. The whole machine is operated by a band, U, passing over the pulley, C. A perfect loop is formed by this machine, and the shuttle is allowed time to pass through the loop before it is drawn tight, and thereby accomplishes the interlocking of the two threads, and the drawing of the stitch tight upon the cloth. Every part is under complete control, the length of feed being regulated by screw, W, and the machine operates quietly and with great precision and regularity.

Any further information can be obtained by addressing Burnet, Broderick & Co., Chicago, Ill.

Animal and Vegetable Life.

There is nothing short of revelation that more beautifully or satisfactorily proves the existence of an Almighty mind than the fewness and simplicity of the ultimate elements of animal and vegetable life. Thus, there are but four elementary principles essentially necessary, and but six generally employed, to form every variety of organic life; nitrogen, carbon, oxygen, and hydrogen are the bases, to which sulphur and phosphorus may be considered supplementary. With these, infinitely varied in their atomic proportions, are built up not only the whole animal kingdom, but also every variety of the vegetable world—from wheat, the "staff of life," to the poison of the deadly Upas tree. It is also worthy of remark that these four elemental principles are those also of which both air and water are composed, so that air and water may be considered in truth and fact as being the original elements of organic life.—*Dr. Toulmin.*

Gun Boats.

About three weeks since (page 237) we directed public attention to the above subject, in a brief review of Chief-Engineer Isherwood's work on the British gun-boats. Since that period much discussion has taken place in the daily papers in reference to the utility of such war vessels. The brave old Commodore Stewart, in a letter of the 27th ult. to the *National Intelligencer*, expresses a favorable opinion of their qualities for the siege of fortifications. He says:—"They will prove of great importance under the power of steam, in any future operations against ports and permanent batteries."

Peculiar Recording Thermometer.

The following is the description of a very simple recording thermometer, used by J. Gautlett—a farmer of Middlesborough-on-Trent, England—and which is stated to be very correct in operation. It consists of a long tube of thin sheet zinc, containing a loose, dry, wooden rod. The two are fixed at one end only. The relative greater expansion of the zinc, by an increase of temperature, causes it to protrude beyond the wooden rod, and *vice versa*. This varying motion of the zinc is communicated by a lever to a pencil which passes on a revolving cylinder, containing a strip of paper, which is wound off every minute by clockwork.

Measures have been taken to light the city of Honolulu with gas, and it is expected that the works will be completed for this purpose in the course of four or five months at farthest.