

Scientific American

A JOURNAL OF PRACTICAL INFORMATION IN ART, SCIENCE, MECHANICS, AGRICULTURE, CHEMISTRY, AND MANUFACTURES.

VOL. IV.—NO. 13.

NEW YORK, MARCH 30, 1861.

NEW SERIES.

Improved Family Knitting Machine.

The sewing machine has become a general household appendage, and as an economist of family labor, its benefits are universally appreciated. The knitting machine should become equally common in families, and we predict that, in a very few years, it will be considered in most households as indispensable as most people in these times consider the sewing machine; and then the avocation of our grandmothers will have gone. It is much older than the sewing machine, but until recently, it has been too complicated and expensive in construction to render it suitable for domestic purposes. The old knitting machines were large and clumsy; it required considerable time and practice to acquire the art of working them, besides considerable power was necessary to operate them; the strength of a female being inadequate for the task.

The accompanying engraving represents a neat, portable knitting machine for families, especially those of our farmers. It is capable of being easily operated by a girl, and, with a few days' practice, stockings of every size and texture, undershirts, mufflers, shawls, undersleeves, rigoletts, &c., may be knit with it at the rate of 4,200 loops per minute.

This machine is so constructed that it may be fastened to a common table with a screw clamp exactly like a "sewing bird," and when not in use, can be taken off and placed out of the way. The spools which supply the yarn to it are set upon the table in a rack or frame, as here represented. Two or more yarns may be fed at once or separately, and each spool may be of a different color so as to produce mixed work. The standard by which it is secured to the table supports the stationary and carries the movable parts. A is a wheel which operates the machine by turning its handle, which is all the attendant does in knitting the articles, besides supplying the spools as the yarn is worked up. The teeth of the wheel, A, take into the cogs of the ring plate, B, and cause the latter to rotate. The threads or yarn are fed from the spools through the eye of the carrier plate, C, and laid upon the knitting needles. The latter are secured in radial grooves inside of the fixed ring plate, situated under the top one. A small tension wheel and plate are carried on the inner end of a bent arm, D; these rotate around under the needles and keep the loops tight and in place. There is a cam groove running around under plate, B, at the butt ends of the needles; and as this plate revolves, the needles are pushed out and drawn in, one after

another, so as to take the yarn on the needles and deliver the loops when formed. The small weight, W, is clasped on the knit fabric, and acts as a simple let-off motion by descending. Each needle has a hinged latch on its inner center end, which opens and closes alternately as it is pushed out and drawn in, so as to form new loops and deliver those which have been formed. A whole series of loops around the entire ring are formed at each revolution and drop down at the center. The work produced is what is called plain knitting; all the loops are alike, perfectly plain, and in this respect they surpass hand-knit fabrics.

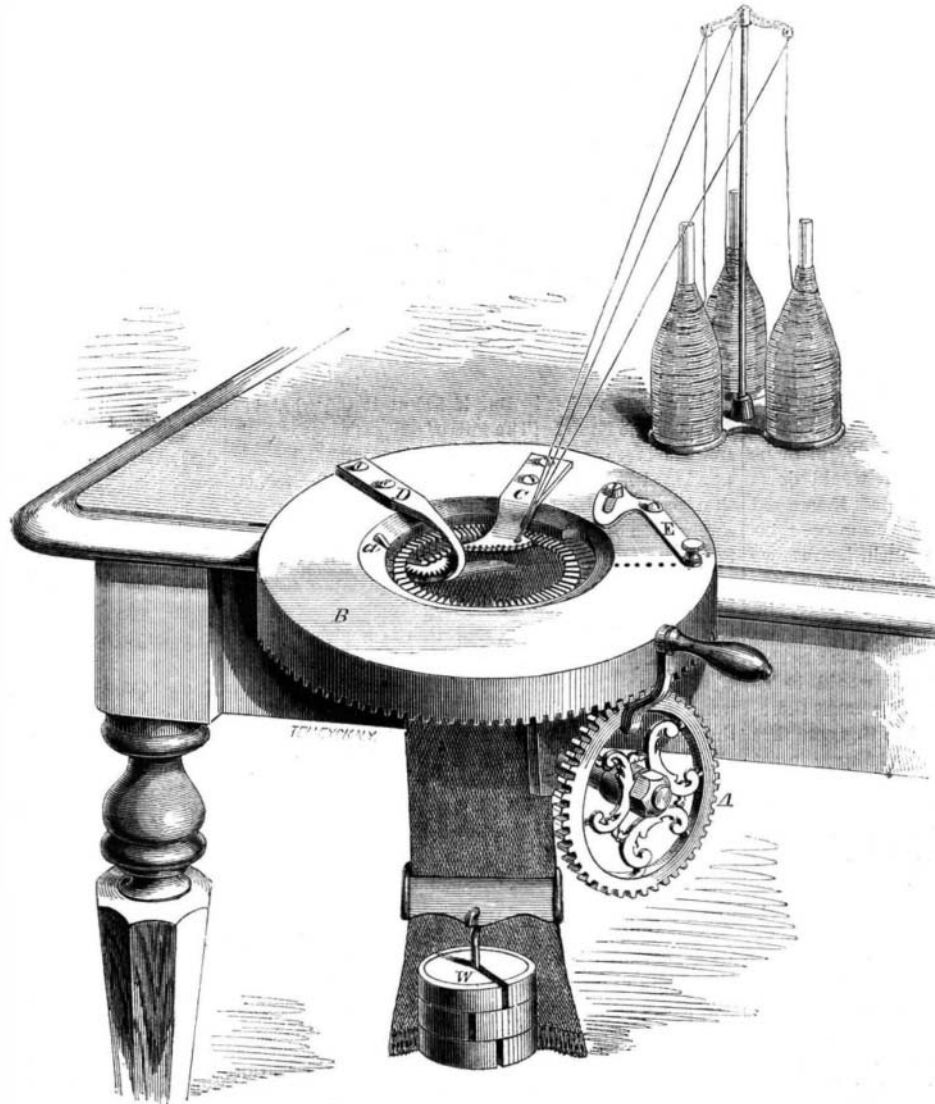
Aiken, Franklin, N. H. By visiting the rooms of his agent, No. 429 Broadway, this city, persons can see the machines in operation. Further information may be obtained by addressing Mr. Aiken, at Franklin, N. H.

Zero of Fahrenheit's Thermometer.

In one of the first years of the eighteenth century, Fahrenheit, of Amsterdam, the inventor of the thermometer used generally in Great Britain, was in Iceland, and, experiencing a most severe winter, erroneously concluded it was the greatest degree of cold or absolute deprivation of heat, and being desirous of fixing a starting point for his thermometer, called that degree of cold 0, or zero. Having obtained the lowest point, he next fixed upon boiling mercury as the highest point in his scale, and divided this distance into six hundred points or degrees. Calling the lowest point zero, or 0, he dated upward, and found the heat at which water just freezes, or ice or snow thaws, to be 32 of these parts, and water to boil at 212 of these parts. Thermometers are often only marked with 212° at the top and 32° at the bottom; and for general observation this is sufficient. Sometimes fever heat, blood heat, and temperate are also written; and as there can be a higher degree of heat than boiling water, so is there also a lower degree of heat or cold than that of freezing water; and this cold, though very rarely occurring in England, can go down to the starting point in Fahrenheit's thermometer scale called 0, or zero, and even lower still, as was the case on Christmas day. All degrees of cold below 0, or zero, are marked with a minus sign before them, and must be added to 32° (or freezing point) to obtain the number of degrees below freezing point. The low temperature of zero can be artificially obtained by inserting

a thermometer in a mixture of snow or beaten ice with sal ammoniac or sea salt. Quicksilver freezes at 39° below zero, or 71° below freezing point. To obtain the temperature of a lower degree of cold, a spirit thermometer is used; and some places in the north experience a cold of 58° of Fahrenheit below zero; and by artificial means, a degree of cold of nearly 150° below zero can be obtained.

THE Boston Society for Medical Improvement has published a circular calling upon physicians to report their observations on the effect of ether upon patients. It has been stated that it is more safe to use than chloroform.



AIKEN'S FAMILY KNITTING MACHINE.

The knit fabric is tubular, but it may be converted into a great variety of articles. The small slide, E, is for regulating the throw of the needles to make long and short stitches, and the needles are put in and taken out at the small slide, a, when required.

This machine is simple and not liable to get out of order. It is capable of making stockings of all sizes and of different qualities, besides a great variety of other articles. It therefore invites the attention of many persons as a profitable investment for making such articles for sale on a small scale. Pleasant and independent employment, with a very limited outlay, is thus insured to the purchaser of this machine. They are manufactured by the patentee, Mr. J. B.