Scientific American.

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

VOL. XIV. NEW YORK, JANUARY 29, 1859. NO 21.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY
At No. 128 Fulton street, (Sun Buildings,), New York,
BY MUNN & CO.

O. D. MUNN, S. H. WALES, A. E. BEACH.

Responsible Agents may also be found in all the principal cities and towns of the United States.

Single copies of the paper are on sale at the office of publication, and at all the periodical stores in this city Brooklyn and Jersey City.

Sampson Low, Son & Co., the American Booksellers, 47 Ludgate Hill, London, Eng., are the British Agents to receive subscriptions for the SCIENTIFIC AMERICAN.

TERMS—Two Dollars per annum.—One Dollar in advance, and the remainder in six months.

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Action of Waves.

The dynamic force hundred by sea waves is greatest at the crest of the wave before it breaks, and its power in raising itself is measured by various facts. Thus, at Wasberg, in Norway, in 1820, it rose four hundred feet; and on the coast of Cornwall, in 1843, three hundred feet. There are likewise cases showing that waves have sometimes raised a column of water equivalent to a pressure of from three to five tons to the square foot. It has also been proved that the velocity of the waves depends on their length; that waves of from three hundred to five hundred feet in length, from crest to crest, travel with a velocity of from thirty to twenty seven and one-half miles an hour—and this, whether they are five or fifty-four feet in total hight.

Waves travel very great distances, and are often raised by far off-huricanes, having been felt simultaneously at St. Helena and Ascension, though six hundred miles apart, and it is thought that ground-swells often originate at the Cape of Good Hope, which extend three thousand miles distant. Nor do waves exert their force at or near the surface only; one instance being mentioned where a diving-bell, at the depth of eighteen fathoms, was moved five feet laterally, in calm weather.

The motion of "shingle," as it is termed, depends on the direction in which the surf strikes the shore, which is influence by the direction of the wind; and this is shown by observations on the French coast, to be in the ratio of two hundred and twenty-nine days from western quarters, to one hundred and thirty-two days from eastern quarters.

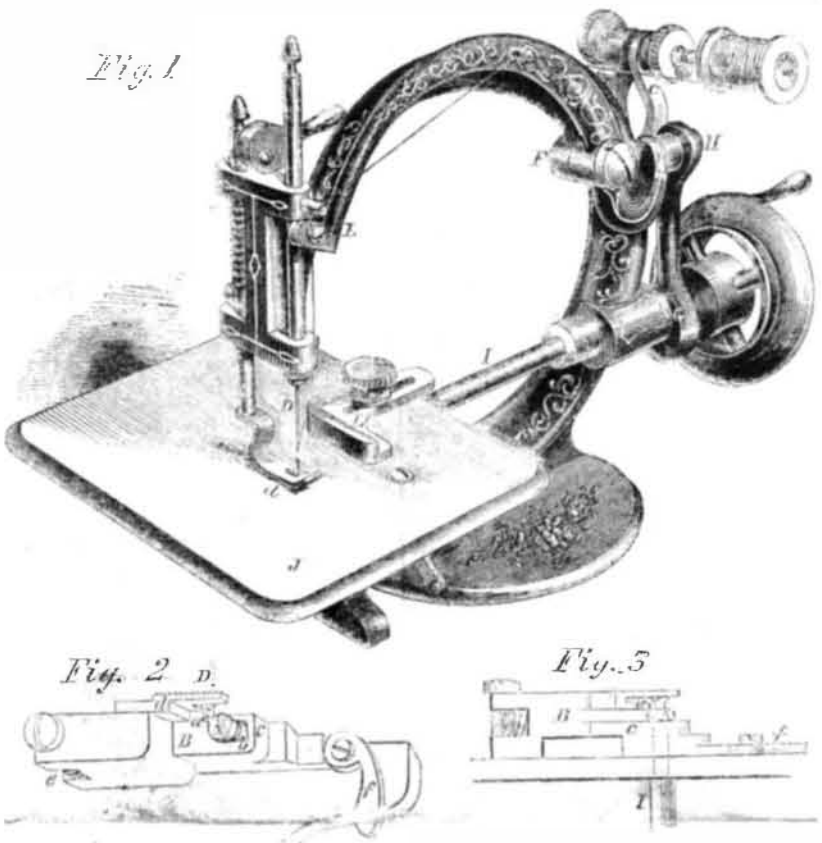
Artificial Pearls.

A very remarkable result of pisciculture has been lately obtained in the department of the Meurthe, when, from a small stream, the enormous weight of 25,000 kilograms of bleak was taken during the last season. The scales of this fish are used for makiug artificial pearls. By an ingenious process they are reduced to a kind of lustrous paste called Essence d'Orient, and the French artificial pearls are simply small hollow glass balls coated inside with this paste and filled with white wax. —*Galignani's Messenger.*

Copying Ink.

M. Henry, of London, has taken out a patent for the use of glycerine in common ink to render it fit for taking copies of letters that may be written with it. Glycerine is a hygrometric liquid, and is suitable for this purpose. It will also tend to keep any substance with which it may be incorporated in a moist or damp state, and is thus very useful for many other purposes.

WILLCOX & GIBBS' SEWING MACHINE.



It is astonishing how, in a few years, the sewing machine has made such strides in popular favor, and become, from being a mechanical wonder, a household necessity, and extensive object of manufacture. While the higher priced varieties have such a large sale, it is no wonder that the cheaper ones sell in such tremendous quantities, and that our inventors are always trying to produce something new and cheap.

The subject of our engravings is the sewing machine known as Willcox & Gibbs' single thread machine, Fig. 1 being a perspective view, and Figs. 2 and 3 diagrams of the feed motion and looper, seen in different positions across the tablet. The inventor is J. E. A. Gibbs, of Mill Point, Va., and he obtained a patent June 2, 1857, which was re-issued July 13, 1858 and another patent August 10, 1858. It is a highly useful machine, and works with wonderful ease.

The principal novelties of the machine are the revolving hook or looper, A, the admirable feed, B, and the peculiar intermittent tension, C. It will be seen by reference to the engraving that a straight needle, D, is used, and that the motion is given to the needle bar by a curved arm, E, pivoted to the frame of the machine at F, and receiving its motion from an eccentric, G, on the pulley shaft, through a connecting rod working on ball joints, H, to give it a universal motion. The pulley shaft, I, it will be observed, passes horizontally under the tablet, J, and has on its end a hook, A, of a very peculiar form, which makes a revolution to each vibration of the needle bar. The action of this hook is as follows:—The needle passing through the goods carrying with it the thread, is met by the point of the hook, *a*, during its upward motion. The point now passes between the thread and needle, retaining the loop, while the needle ascends for a seeond stitch; on its descent its passes through the loop on the hook, which loop is delivered upon the needle before a second loop is taken by the hook, each loop of the stitch being twisted half of a revolution after it has been drawn through its predecessor, by which means a firmer and more secure stitch is obtained than has hitherto been accomplished by such machines as this. The simplicity and accuracy of this mechanism prevents its dropping stitches, to which many other machines are so liable, and which has hitherto brought the "chain stitch" into disrepute.

The feed is got from an eccentric, *b*, on the pulley shaft directly behind the looper: the feed bar, *c*, carrying the feed surface, *d*, (which, of course, must project through the tablet, J,) is pressed against this eccentric by a spring, *e*, the eccentric, *b*, in fact, revolving in a slot in the feed bar. If the motion of this feed bar be not checked in any way, it will follow the motion of the eccentric, and the feed surface will describe a circle, a portion of the arc of the circle occurring above the tablet on contact with the goods, while the remainder of the circle is completed below the tablet, and away from the goods. The length of the stitch or amount of feed is regulated by a small cam-shaped lever, *b*, against which the feed bar strikes, and the position of this lever can be varied so as to diminish the throw of the feed bar, cutting off a portion of its arc of motion, thus determining its horizontal motion, its vertical throw remaining the same.

The spool-holder, K, consists of a conical sleeve revolving on two cones, the pressure of the cones upon the sleeve being regulated by a thumb-screw and spring; this gives an adjustable tension, while an intermittent tension is given by a lever, C, pressing against one of the cones, and operated by the needle arm, E, in such a manner that during the formation of the loop the thread is left comparatively slack, while the tension is very much increased when the loop is being drawn into the goods.

One cannot but admire the beauty and accuracy of its movements, and the entire absence of all noise, even when it is running at the rate of two thousand stitches and upwards per minute; this alone must prove a great recommendation to it. Another merit is the good workmanship, and the parts are made interchangeable, so that in the event of an accident to the machine, any part can be replaced at a trifling cost. It is sold upon an elegant stand that forms an ornament to a parlor. At the late fair of the Franklin Institute, Philadelphia, it received the highest commendation from a committee of judges, and their report was eminently favorable.

James Willcox, No. 715 Chestnut street, Philadelphia, is the manufacturer and general agent, from whom further information may be obtained.

M. Aime Bonpland.

This distinguished botanist died recently at San Borja, Brazil, at the age of eighty-five. In early years he was the companion of Humboldt in his travels on this continent, and collected and classified upwards of six thousand plants then unknown. He was the friend of Napoleon I. and the Empress Josephine, and is the person who advised the Emperor after his abdication at Fontainebleau to retire to Mexico and wait for a future opportunity of becoming again the lion of Europe. After the death of Josephine he returned to South America, and became a professor of natural history in Buenos Ayres. After many travels in the tropics, and imprisonment as a spy in Paraguay, from which he was released in 1829, he retired to San Borja, where, surrounded by rare botanical specimens and beauteous orange groves, he lived in tranquility and died in peace. He published many botanical works in the French language.

Statistics of Lowell Manufactures.

From a small table recently published on the above subject, in Lowell, we learn that there are 399,064 spindles and 12,234 looms at work in that city. There are 2,394,000 yards of cotton cloth made weekly, 44,000 yards of woolen cloth, and 25,000 yards of carpets. The Merrimack Manufacturing Co. makes 340,000 yards of calico per week, and and the Hamilton Co. 148,000 yards. No less than 72 turbine wheels are required to drive the machinery of all the mills, besides several breast wheels; 61,617 gallons of sperm oil and 26,000 pounds of lard are consumed annually.

Strength of Camels.

The Galveston *News* states that one of the camels in that city kneeled down and received a load of five bales of hay weighing 1,400 pounds, which it raised without the least effort, and walked away with apparent ease. In their native country the average load for a full grown camel is some 800 pounds, with which they perform long journeys over deserts with but little food or water.

HOGS IN OHIO.—We learn from an exchange that the number of hogs in Ohio, six months old and over, on the 1st of April, 1858 (a fit day to take a pig census), were 2,554,914. In 1857, there were 2,331,778, thus showing an increase of 223,136 in the year. This prosperity should make that State *bristle* up.