SEWING MACHINES.

The following statistics regarding the sewing-machine trade in Great Britain and the United States (compiled from Patent-office reports, from the SCIENTIFIC AMERICAN, and from the reports of persons intimately acquainted with the manufacturers and users of machines in both countries) are probably as near an approximation to the facts as can be obtained:—

	Great Britain.	United States.
No. of Patents granted...	200	300
Manufacturers	5	25
Varieties of machines.....	6	30
" " Lock-stitch Machines	— 3	— 10
Machines sold weekly.....	100	1,500
Prices.....£3 to	£30	£1 to £30
Lowest price for a lock-stitch machine.....	£11	£10
Whole number in use.....	10,000	100,000

A considerable number of machines have been imported from the United States into England, but the parties using them do not wish the fact to be made public, lest they should be sued for an infringement of the patent dated December 1, 1846, granted to W. Thomas, of London. This patent extends only to England, hence a large number of American-made machines are used in Scotland and Ireland. In England only one kind of lock-stitch machine is manufactured, and its lowest price is £22. In Scotland or Ireland a lock-stitch machine may be bought or imported from the United States for £11.

These are facts certainly far from gratifying to our national pride. Although the invention of the lock-stitch sewing machine was made in England by Fisher and Gibbons, the original patentees of the sewing machine, *two years before* it was patented in America by Elias Howe, Jr., yet now there are ten times more machines used in the United States than in Great Britain. Why, then, has the progress of the sewing-machine been so slow in this country? Chiefly for two reasons:—1st, There has been no competition among manufacturers; and 2ndly, prices are far higher in England than in America. In the United States as good a machine can be bought for £10 as is sold in England for £22. Competition among manufacturers has improved, cheapened, and advertised American machines. And if the trade had been conducted in this country as it has been in the United States—if the public had been permitted to select from the best machines that could have been brought into market—and if these machines had been offered for sale at a reasonable price, this trade would now be giving employment to 100,000 mechanics and operatives who are at present engaged in less lucrative employments, and for the past two or three years Great Britain would have been a gainer to the amount of, at the very lowest estimate, three million pounds annually.—*London Mechanics' Magazine.*

STRENGTH OF WOODEN WATER-PIPES.

Several inquiries have been made of us from time to time regarding the strength of wooden water-pipes; yet, until now, we have not been able to present any reliable data of this useful character. One of our correspondents (Mr. A. Wyckoff, of Rochester, N. Y.) sends us the description of a series of experiments undertaken, to test the strength of such pipes, by Daniel Marsh, Esq., C. E., of that city, and which were published in the Rochester *Union and Advertiser* under his signature and that of Professor Quimby, who was an eye witness; also several other practical and scientific men.

Pipes of various sizes were subjected to pressure so great as to burst them, but they bore a far greater amount than any spectator supposed them capable of bearing. The largest pipe tested had a bore of eight inches in diameter; the smallest had a bore of one inch and five-eighths through a pine scantling of three and a half inches. These scantling were put together in sections, and sustained a pressure equal to a head of 180 feet, and subsequent experiments showed that they would sustain a far greater pressure before bursting.

The following is the report of Mr. Marsh regarding his experiments; and the results, as placed in a tabular form, will be found very convenient for future reference by our hydraulic engineers and others:—

"I hereby certify that I have recently conducted a variety of experiments upon wooden pipes of different sizes, designed for the conveyance of water, and with the results hereinafter stated. Hydrostatic pressure was applied to the pipe by means of a double-acting piston pump, with an air chamber attached; and the amount of pressure acting upon the whole interior surface of the pipe was ascertained by means of a piston, which was cylindrical in form, and made equal in area to one square inch, and fitted to an opening in the pipe, which conveyed the water from the pump to the wooden pipe, and of a scale beam graduated so as to indicate any amount of pressure from forty to two hundred pounds. The opposite side of the beam was graduated to indicate in feet the hight of a vertical column of water which would produce a corresponding pressure. This apparatus, the accuracy of which was tested in my presence, was made by Forsyth & Co., manufacturers of platform scales in this city. Some of the pipes used in these trials were made of round logs and others of square scantling; but they were all made of white pine timber. The following is a statement of the pressure to which the pipe was subjected, in which the last column indicates the pressure at which the pipe burst:—

No. of Expt's.	External Dimensions. Inches.	Internal Dimensions. Inches.	Length. Feet.	Pressure Applied. Lbs. per Inch.	Water Pres. Sus.	Pipe Burst.
1	3½ Sq.	1⅝	8	86 8-10	200	
2	3½ Sq.	1⅝	8	85	195	207
3	3½ Sq.	1⅝	8	60¾	140	
4	3½ Sq.	1⅝	8	60¾	140	
5	3½ Sq.	1⅝	8	78 1-10	180	190
6	6 Sq.	2⅛	8	90	207	218
7	6 Sq.	3	8	75	172	184
8	6 Sq.	3	8	82½	190	195
9	14 D.	6	5	82½	190	
10	20 D.	8	4	86 8-10	200	
11	14 D.	6	5	73¾	170	180
12	6 D.	3	8	65 1-10	150	
13	14 D.	6	5	65 1-10	150	
14	3½ Sq.	1⅝	8	134½	310	
15	20 D.	8	4	82½	190	200
16	12 D.	4	5	73¾	170	180

DANIEL MARSH, Civil Engineer."

ELECTRIC LIGHT.

A light resembling that of the sun in brilliancy can be produced by a powerful current of electricity acting upon cones of fine carbon. Hitherto, however, it has been extremely difficult to maintain a uniformly intense electric light, owing to the change which takes place in the particles of the carbon cones, and much attention has been directed to overcome this obstacle. We have always entertained the hope that some invention would be brought out to accomplish this result, so that this splendid light might be more universally applied; but, although our anticipations have not yet been fully realized, men of science and inventors, we believe, are moving onwards with slow but sure steps to such an achievement. A late issue of *Galignani's Messenger* contains an account of an electric light which had been exhibited for several nights in the streets of Paris, drawn on a car, and it is stated to have been equal in volume to 230 wax candles, and that its cost was only about three cents per hour. The apparatus for making it was a magneto-electric machine, having 24 magnets on a wheel, revolving at the rate of 235 times per minute. The light was so pure and white that when it was thrown upon the flame of a wax candle, held alongside of a white wall, a deep shadow was produced.

The exhibition of this light was made for the purpose of showing its practical and economical character for lighting large public buildings or squares, by a single immense burner. Currents of electricity for such purposes may be generated by steam-power, and conveyed to a considerable distance by metallic conductors. The mechanism for regulating the carbon points of this light has been difficult to manage; but we trust this defect may soon be removed, and all hindrances surmounted, so as to permit its unequaled beams to be universally applied.

Currents of electricity have been used to ignite all the gas-jets of a single large building in an instant of time, by simply pressing the finger upon the key of a galvanic-battery, and an apparatus for effecting this object was illustrated and described on page 320, Vol. XII., SCIENTIFIC AMERICAN. This invention is quite different in its nature from the electric light *per se*, but for obvious reasons we cannot pass it by at present. There can be no question about the utility of such an appliance; and yet it is not in use, so far as we know, in any building in our country. Any person can appreciate the convenience of having an arrangement of mechanism by which every gas-light in a church or large hall may be ignited in an instant, by touching a key in a distant part of the building. An apparatus for doing this has both been patented and tried, and the effect was stated to have been successful; and yet it is not in common use. It appears to us, from a statement in an Edinburgh paper, that they are rather ahead of us in electric-lighting in that city, for a large public hall has been constantly lighted there for several months in this manner, and its success is stated to be beyond doubt. If this is done in Edinburgh, it certainly can be done everywhere, and ought to be generally applied.

To ignite gas-jets upon this principle, a thin strip of platinum is placed in such a manner that the gas of the burner will impinge upon it, and a current of electricity is sent along a wire to this strip of platinum, so as to heat it and ignite the gas. A piece of spongy platinum, placed in a current of coal-gas, soon becomes so highly heated as to cause combustion to take place; but when thus exposed for a considerable period of time to flame, its igniting qualities deteriorate, and it becomes useless as an igniter. To obviate this difficulty, each jet in the Edinburgh building is furnished with a small electro-magnet, connected with the burner, by which the platinum strip is lifted out of the flame soon after ignition takes place; and it is thus preserved to perform the same office over and over again for a number of years. Such an arrangement in its general features appears to be useful, and the success of the improvement seems to be decided. This is a question of considerable importance, and deserves more general attention.

A CURE FOR LUMBAGO.

The following amusing, though somewhat painful incident, actually occurred at a farm-house not a great many miles from the village of Copetown, C. W. All are subject to the ills of the flesh, and Mr. ——, a worthy and highly respected man, was very severely afflicted with that painful complaint, lumbago; so much so, indeed, that he could not stand erect, and could walk with great difficulty. As is common in such cases, it was thought desirable to rub the afflicted part with some spirituous compound; and that the application might be the more effectual, the goodman was sat with his back to the fire while the goodwife gave sweet relief—now applying the spirituous oil, now warming her palm over the cheery blaze, and again chafing the afflicted part. While thus engaged, it unfortunately happened that, without the good dame observing it, the spirit upon her hand took fire, and she, with a magnetic pass, at once set the old gentleman's back in a blaze. The effects produced were akin to the miraculous. He bounded up with a new-born energy; he yelled and rushed round the house, uttering a string of expletives totally unworthy of a deacon. Fortunately, the fuel that supplied the fire was soon exhausted. Tired and sore, the goodman was put to bed, and, we are happy to add, cured of his lumbago, and has never had it since.—*Exchange*

EXHIBITION OF THE MARYLAND INSTITUTE.—The Twelfth Annual Exhibition of the above Institute, for the promotion of the mechanical arts, will take place on the fourth day of October next, in the city of Baltimore. Mechanics, manufacturers, artists, inventors, and others who have new and useful productions to display, are cordially invited to exhibit. For more particulars as to the mode of conducting the exhibition, and applying for space to expose articles, we refer our readers to the advertisement of the managers, on another page.

The exhibitions of the Maryland Institute have always borne a high character, and we never have heard a complaint urged against their management. This redounds greatly to their credit, and affords proof of great courtesy and good judgment on the part of those entrusted with their affairs. Although citizens from all parts of our country are invited to be present (and all who come will be welcomed), yet is is on the mechanics and manufacturers of Maryland that the Institute relies for success. We therefore urge them to make the next the greatest Mechanical Fair that has ever been held in their State.

STEAM ON THE OHIO CANAL.—The first attempt to navigate Ohio canals by steam has taken place this season, and the success has been unquestionable. The *Enterprise*, built at Akron, Ohio, has made several trips, it is stated, to and from Cleveland, carrying 60 tuns and running at the rate of five miles per hour. The engine is about eight horse power, has a seven inch cylinder, with twelve inch stroke, and occupies about as much room as the stables for horses on the ordinary boats. She is propelled by a screw.