THE SEWING MACHINE.—NO. II.

Henry Lye, of Philadelphia, obtained a patent, March 10, 1826, for an invention for sewing leather, but no record or model has been found in the Patent Office, or elsewhere, to indicate its character.

The next attempt at machine-sewing, so far as appears from the Patent Office, was made by Alexander Temple, whose model, deposited in 1841, we had the opportunity of inspecting recently. It is designed for sewing leather, the clamps being moved automatically, and the needle, double-pointed, passed through the work by means of reciprocating fingers, one on either side of the clamps. There is an awl to make a passage for the needle, and also devices which appeared to us to be designed to catch up the loose end of the thread, and other devices which seemed to be meant to draw up the stitch. A great deal of mechanical skill and ingenuity are shown in this machine, which has every apppearance of having been a good working model. No drawings thereof or specifications have ever been found, nor have any traces been discovered that the inventor took any further steps to procure a patent than the depositing of his model. The next in order is the invention of Mr. J. J. Greenough, to whom letters patent were granted in 1842. Since then, as appears from the list of patents, in our possession, more than 425 letters patent have been granted for improvements in sewing machines, and we doubt not that the rejected and postponed portfolios of the office contain at least 300 unsuccessful applications. Many persons will suppose that the art of machine-sewing has now reached its utmost perfection, but we have the best of evidence for stating that there is yet no cessation in the attempts at improvement, and each new business to which it is introduced suggests new mechanical arrangements. The results of this invention are truly brilliant in whatever direction we look.

If we attempt to get at the value in money of the annual saving it has already made in the United States, we become startled at our own calculations. It has been proved in the proceedings on the application of Elias Howe, Jr., for the extension of his patent of September 10, 1846, that about 200,000 sewing machines have been sold to factories and families. Say that only 75,000 of these are now in use and good condition, and that 30,000 of them are in daily use in shops and factories. One hand with a machine can do the work of five hand-sewers at a low average (the range is from 4 to 12), which ought to effect a saving, taking one kind of business with another, of twelve shillings a day. But we will call it only one dollar a day, or $300 a year for each machine. The result is $9,000,000 annual saving in the shop and factory.

If we reckon that the 45,000 machines which we have allotted to families are in use two days in a week, or one hundred days in a year, and effect a saving of one dollar a day while so employed (and no family that has one in use will call that amount too great), we have an annual saving of $4,500,000, and a total for the family, shop, and factory, of $13,500,000, which is saved annually to employers in the wages of labor. Here a question may be raised by some who will ask if the withdrawal of this large sum so suddenly from the working classes who used to receive it as wages, can be a benefit to them, and whether the nation at large can be said to prosper when thousands of industrious people are crowded away from their accustomed work into idleness and poverty, while the sums that once rewarded their toil are only directed into the wide pockets of the employer? This is not an abstruse question in political economy. It is a question only of fact, and we will see in the end that this machine, like the steam engine, the reaper, the spinning frame, and the loom, has opened new and smoother roads to the sons and daughters of toil, has cheapened many of the necessaries of life, and brought into useful and profitable labor many who before were unable to earn a comfortable subsistence.

We propose to illustrate this subject by quoting some of the facts collected in the case already mentioned, and in so doing we will also be able to inform our readers of the results to trade and manufactures which have been wrought by this little mechanical giant.

The cap manufacture in the city of New York amounts to 375,000 dozen annually. These could be made by hand for sixty cents a dozen—by machine ten cents a dozen, and better sewn at that. All the sewing on a cap is done by the machine, except putting in the lining and the fronts. Gentlemen's hats are now bound by machinery exclusively. We believe Singer first invented a method of doing this. His machine will bind a hat in one minute of time, while fifteen minutes are required in doing the same work by hand. The cost by machine is four to five cents a dozen, by hand-sewing, about thirty cents a dozen. The manufacture of hats in this city rises to about the same number as that of caps, 375,000 dozen.

Every person who can recollect buying a lady's gaiter ten years ago, will be able to contrast the amazing fall in the prices of that neatest article of attire for the foot. Our recollection is that the difference is one-half in favor of the prices of to-day. This is due chiefly to sewing machines, 5,000 of which are daily engaged in stitching boots and shoes in Esssex county, Mass. These machines are usually owned by the operatives themselves, who are mostly women, and who do the work at their homes. They now earn twice or thrice the sum they could earn by hand, whilst the manufacturer has less damaged work returned to him; the work is stronger, and the cost is only one-fourth of the cost by hand-sewing. These advantages have so stimulated this business that it has increased three-fold within the last six years. The wages of labor paid in Massachusetts, in the boot and shoe business, is put at $5,000,000.

The clothing trade is now a respectable branch of business. There was a time when the cry of "slop-shop clothing" suggested only the distress, and poverty, and temptations which so cruelly beset the sewing-women of our city. We hope the night of their distress has passed and gone, and that the dawn of their prosperity has risen upon them.

There are several firms who do a business of a million a year in this trade. In light work, such as linen coats, &c., the saving of labor is about 50 per cent. In heavy work not so much, except on quilting, when the saving is often greater, and, indeed, some of the quilting done on fine coats by the machine could not be done by hand. There is no doubt that the vast increase of the clothing business is directly owing to this agency. We cannot give any reliable statistics of the extent of the trade, but we are satisfied that this city sells annually not less than $15,000,000 worth of ready-made clothing. Our city has by the aid of this machine so monopolized the clothing trade that it has been estimated that one-tenth of the manufacture of the United States is carried on here.

[To be continued.]

VENTILATE THE CHURCHES AND THE SCHOOLS.

[Communicated to the Scientific American.]

We have pointed out in our last number the necessity of ventilating the shop. Those observations apply not only to the tradesman's shop, but also to the workshop or factory. The fearful decadence of the health of such towns as Manchester, Oldham and Sheffield, which are in truth but congregations of workshops, is notorious; the pale, wan faces of the dwellers there too truly tell the want of pure, clean, fresh air.

Passing now from the private shop to public institutions, we are compelled to admit the same radical fault—the want of that element which is the "breath of life."

In the churches, schools and assemblies, people who go there suffer more or less from this evil. It is proverbial how persons, young and old, suffer from colds, bronchitis, and influenza, all of which are said to be "caught" when they return from some public place of assembly. The question naturally arises, how is this? The answer is that it is caused by the sudden change which the body undergoes in passing from a heated impure air to that of the natural temperature, containing also its proper proportion of elements. Man requires for his health one gallon of air every minute of his life; the individuals of a church congregation are rarely, if ever, supplied with a quarter of that quantity. Only at the cathedrals is the air space in proportion to the worshippers. A man of large lungs inhales about twenty five cubic inches of air at each respiration; he breathes eleven times a minute, and thus requires nine and a half cubic feet of air every hour. Now when there are a thousand persons under one roof (some of the metropolitan churches and chapels contain 2,500 persons) for a couple of hours, it is evident that twenty thousand cubic feet of air are required to supply that which is necessary for existence to those thousand persons in a pure atmosphere, so that, of course, a much larger quantity than that is required in order that a current can be established to remove the effete matter of exhalation.

"The evils of vitiated air are also more to be guarded against, because persons can live in it without being aware of its danger, so far as their sensations are concerned. When we enter a crowded assembly on a cold day, the air is, at first, repulsive and oppressive, but these sensations gradually disappear, and then we breathe freely and are unconscious of the quality of the air. Science, however, reveals the fact that the system sinks in action to meet the conditions of the impure air, but it does so at the expense of having the vital functions gradually depressed, and when this is continued disease follows." No disease can be thoroughly cured when there is a want of ventilation. It is related that illness continued in a family until a pane of glass was accidentally broken, and then it ceased; the window not being repaired, a plentiful supply of fresh air was admitted.

The practice of building sepulchral vaults under the churches was fraught with the greatest evil to the health of those who went into the edifice for sacred purposes. But, with few exceptions, it is now interdicted by the legislature; still a great deal has to be done. Nearly all the churches in the empire require some artificial means of ventilation to render them physically fit receptacles for the body during a prolonged service. The Sunday schools also, as a general rule, are very ill ventilated, and in the second hour the lessons are far worse rendered that in the first, solely arising from a semi-lethargic coma that comes over the pupils breathing a carbonic air, which has already done duty, and been inhaled by others several times. However it is to be regretted, it is yet true that people will sometimes sleep during the sermon. Now, the minister must not be twitted with this, for with the oratory of a Jeremy Taylor or a Tillotson, people could not be kept awake in an atmosphere charged with carbonic gas, the emanations of a thousand listeners. The churchwardens should ventilate the churches and see that the congregations have sufficient air for breathing; if people go to sleep, the churchwardens are more to blame than the preacher.—SEPTIMUS PIESSE.

THE REAL CAUSE OF BLASTED WHEAT.

MESSRS. EDITORS:—In answer to your correspondent, S. S. C., on page 163, present volume of SCIENTIFIC AMERICAN, asking the cause of wheat being "blasted," I would state that being raised a regular farmer, and having considerable experience, I am well satisfied that the preceding crop has little to do in causing the blast; bad seed is in general the cause. An old farmer in Tennessee had good wheat seed, known as "barrel seed," which had been proved to yield better crops than any other in the neighborhood; the result was, that everybody came to him for seed wheat. The old man getting tired of exchanging in this way, at last told his neighbors that they could produce "barrel wheat" themselves. The secret was, to take and strike the sheaves over the edge of the barrel, and what scattered off was "barrel wheat." The largest, best-matured grain coming off first.

That smut is produced by the use of seed not fully matured can be easily proved. Take a few bundles of No. 1 wheat in the early dough state, sow it, and it will produce a glorious crop of smut; but take from the same wheat when fully ripened, and sow it either after oats, corn, or clover, and the wheat will be good. Defective grain is only able to produce a stalk and start the grains, but not to finish it. Put such grain into a solution of blue stone and in a few hours the germ is dead; good grain will resist the power of the acid for a day or two. The only benefit to be derived from soaking wheat in blue-stone is, it destroys the germ of such grains as were not fully ripened.

In these fast times every one is in a hurry; and hence, in order to meet the market, it becomes necessary to take up the hoe-cake before it is done, so as not to be *left* by the *cars*.

Those who believe me to be mistaken can prove for themselves, it is an easy experiment. N. A. P.

Kingston, Tenn., Sept. 25, 1860.