

The Growth of Machinery.

Emerson, in his "English Traits," has a striking and curious chapter on the above subject, from which we extract the following:

"Tis a curious chapter in modern history, the growth of the machine shop. Six hundred years ago, Roger Bacon explained the precession of the equinoxes, the consequent necessity of the reform of the calendar, measured the length of the year, invented gunpowder, and announced (as if looking from his lofty cell over five centuries into ours,) "that machines can be constructed to drive ships more rapidly than a whole galley of rowers could do; nor would they need anything but a pilot to steer them. Carriages also might be constructed to move at an incredible speed, without the aid of any animal. Finally, it would not be impossible to make machines which, by means of a suit of wings, should fly in the air in the manner of birds." But the secret slept with Bacon. The six hundred years have not yet fulfilled his words. Two centuries ago the sawing of timber was done by hand; the carriage wheels ran on wooden axles; the land was tilled by wooden plows. And it was to little purpose that they had pit coal, or that looms were improved, unless Watt and Stephenson had taught them to work force pumps and power looms by steam. The great strides were all taken within the last two hundred years.—The "Life of Sir Robert Peel," who died the other day, the model Englishman, very properly has for a frontispiece a drawing of the spinning-jenny, which wove the web of his fortunes. Hargreaves invented the spinning-jenny, and died in a workhouse. Arkwright improved the invention, and the machine dispensed with the work of ninety-nine men; that is, one spinner could do as much work as a hundred had done before.

The loom was improved further. But the men would sometimes strike for wages, and combine against the masters, and, about 1829-30, much fear was felt lest the trade would be drawn away by these interruptions, and the emigration of the spinners to Belgium and the United States. Iron and steel are very obedient. Whether it were not possible to make a spinner that would not rebel, nor mutter, nor scowl, nor strike for wages, nor emigrate? At the solicitation of the masters, after a mob and riot at Staleybridge, Mr. Roberts, of Manchester, undertook to create this peaceable fellow, instead of the quarrelsome fellow God had made. After a few trials, he succeeded, and, in a creation, the delight of mill owners, and destined, they said, "to restore order among the industrious classes;" a machine requiring only a child's hand to piece the broken yarns. As Arkwright had destroyed domestic spinning, so Roberts destroyed the factory spinner. The power of machinery in Great Britain in mills has been computed to be equal to 600,000,000 men, one man being able, by the aid of steam, to do the work which required two hundred and fifty men to accomplish fifty years ago. The production has been commensurate.

England already had this laborious race, rich soil, water, wood, coal, iron, and favorable climate. Eight hundred years ago, commerce had made it rich, and it was recorded, "England is the richest of all the northern nations." The Norman historians recite, that "in 1067, William carried with him into Normandy from England more gold and silver than had ever before been seen in Gaul." But when to this labor, and trade, and these native resources, was added this goblin of Steam, with his myriad arms, never tired, working night and day everlastingly, the amassing of property has run out of all figures. It makes the motor of the last ninety years. The steam pipe has added to her population and wealth the equivalent of four or five Englands. Forty thousand ships are entered in Lloyd's lists. The yield of wheat has gone on from 2,000,000 quarters at the time of the Stuarts to 13,000,000 in 1854. A thousand millions of pounds sterling are said to compose the floating money of commerce. In 1848, Lord John Russell stated that "the people of this country have laid out £300,000,000 of capital in railways, in the last four years."

Mr. Emerson has made a mistake respecting

the inventions of Hargreaves and Arkwright—the former is the inventor of the mule frame, the latter that of the *throstle frame*—two different machines; both spin cotton, to be sure, but they are entirely distinct, and both are used in different factories. Roberts, of Manchester, is not the inventor of the self-acting *mule frame*, but Messrs. Eaton, of that city; but their first machines were very complex, and were not very successful. Roberts, in 1830, improved upon them, making them more simple and really successful, for which he deserves great credit. The self-acting mule, however, has not destroyed the labor of the hand-spinner. There are more hand-mules still in operation than the self-acting kind—all fine numbers of cotton are still spun on the hand mule.

Compasses on Iron Ships.

On the steamer *Persia*, which is an iron vessel, the compass has been a subject of curiosity to every one who has examined it, and we have been interrogated a number of times regarding the principle of its construction. It is the invention of William Graham, of Glasgow, and we learn from the *London Engineer* that he has recently obtained a patent for an improvement on it, a former patent having been granted in 1854. This invention consists, first, in correcting the attraction; secondly, in adjusting the compasses. The first part consists in laying a number of corrective magnets radially around the needle platform. These corrective magnets are capable of minute adjustment, to suit the corrective action required, by screws. The center point, carrying the compass card, is adjustable vertically in the bowl of the compass, so as to enable the shipmaster to set the card and its needle at any desired height, to rectify the heeling deviation, when any exists. Or, instead of thus shifting the center-point, the gimbles, or points of suspension, may be fitted with vertical adjusting apparatus to gain the same end. The operation of adjusting the compass on board ship is performed this way: When the compass is placed on deck and properly fixed fore and aft, corrective magnets are disposed, after the manner already described, one on each side of the compass card. The ship's head may then, for example, be turned to the east, and the fore and aft corrective magnets be adjusted so as to cause the compass needles to point correctly. Then the ship's head is turned, say to the north-east, when the compass may be found to deviate more or less from the truth. To correct this error, two additional magnets are put down, one on each side of the compass card, to act in concert with the first pair. These latter magnets are disposed east and west, or so as to occupy the precise positions with relation to the earth which the first pair occupied before shifting the ship's head to north-east, and they are now adjusted to bring the compass needle correct in the position to which the ship's head has been turned, that is, to the north-east. Having done this, the last-adjusted pair of magnets are removed, and then placed on a line running from north to south, and at the same distance from the center of the card as they occupied before shifting them. Adjustment is now secured by the aid of a third pair of magnets, which are to be placed in the positions from which the second pair were removed, the ship's head remaining in the north-east position. Or, instead of shifting the second pair of magnets, the ship's head may be moved to the north or south, and the third pair of magnets applied at right angles to the second pair. Or, after adjustment is made by the first pair, the ship's head may be turned to the north or south, and the error corrected by compensation for half the error of each pair of magnets. It is intended that five or six corrective magnets only should be employed in this system of adjustment, but four or more may be used at pleasure.

Large Steam Frigates.

A correspondent of the *London Mechanics Magazine* states that some very large steam frigates, are now in the course of construction in order, we suppose, to come up to the magnitude of our new frigates. The *Merrimac* having rather astonished the naval authorities of England, by her heavy armament and huge proportions.

To Inventors.

The following truthful article we copy from *Clough's Reporter*, Philadelphia, Pa. The editor of the paper and author of this article is the inventor and seller of stove and furniture polish of renowned celebrity, dealer in fly and cockroach traps, and patentee of Clough's hen's nests. He speaks, therefore, from experience in the annexed article:—

"Perhaps there is no class of valuable citizens, who are more neglected, and who suffer more severely in their pecuniary interest than that of inventors. Any arrangements or propositions calculated to meet their necessities and relief should be regarded as a great benefaction, even though it were tinctured with no small degree of what to some may appear selfish, when they are asked to lend a helping hand to introduce to public notice and patronage any new invention or discovery, no matter how simple it may be.

This is an age of improvement, and so rapid are the new and useful inventions that we have hardly time to utter astonishment before another is brought forward. It is, therefore, needful that all should be made known. The public press should be the first resource to accomplish the desired object. Let everybody know what you have done, and what you wish to do. 'It is expensive,' says one. What of this? it is expensive to enjoy life. If you try to live without eating, it will save sixpence, but by the time you get learned it will be the death of you. So with advertising: judiciously done, it is only like learning—it can never be lost to a valuable inventor. The inventor of these polishes, after sixteen years' experience of active life, and thousands of dollars spent in advertising—for who has not heard from some one of his improvements—says he has long since come to the conclusion that this makes business, and business is the grand regulation of life.

Tradesmen's Marks in Law.

A singular trial took place in the Supreme Court, this city—Judge Davies presiding—on the 6th inst., and as it relates to a very important question which concerns our manufacturers, we will endeavor to present the whole bearings of the case clearly.

The parties were Morris L. Samuel and Edwin M. Dunn, plaintiffs, against Albert Berger and others, defendants. The complainants alleged that they were the assignees of Sylvester L. Samuel, who, by agreement with one James Brindle, acquired the right to use his name upon watches manufactured by Samuel and his assignees, and that defendants sell watches manufactured by Brindle and stamped with his name. They therefore sought an injunction to restrain defendants from selling such watches.

The Judge in his decision said, "The plaintiffs say that Brindle, as a watchmaker, had acquired a reputation as such, and that all watches manufactured by him were stamped with his name; that Sylvester J. Samuel purchased from Brindle the right to stamp Brindle's name on watches manufactured by Samuel; and that Samuel assigned to the plaintiffs the right to stamp Brindle's name on watches manufactured by them.

The defendants have on hand for sale the watches manufactured by Brindle and stamped with his name, and this Court is called upon to restrain them, by injunction, from selling the genuine, and thus to protect the plaintiffs in selling the simulated article.

The plaintiffs ask the Court to aid them in passing off upon the public watches manufactured by them, and held out to the public as made by Brindle, when, in truth, the watches made by Brindle, and stamped by him with his mark, are those which the defendants seek to sell.

If the defendants were seeking to make sale of watches manufactured by them as those manufactured by Brindle, and the right of the plaintiff to use his name as a trade-mark was clear, then the injunction should go; but they cannot call on this Court to aid them in passing off the watches made by them as those manufactured by Brindle.

At present it is sufficient to say that in all cases where a trade-mark is imitated, the essence of the wrong consists in the sale of the goods of one manufacturer or vender as those

of another; and it is only when this false representation is directly or indirectly made, and only to the extent in which it is made, that the party who appeals to the justice of the Court can have a title to relief.

Applying these principles to the facts in the case, we shall see that the plaintiffs invoke a rule of law which the defendants might claim to be applied to them, but which will not avail the plaintiffs.

I am satisfied, from an examination of the cases on the subject of trade-marks, that in no case like the present has an injunction been issued, and to issue one in this case would be violating all the rules laid down in the books, as applicable thereto.

When the power of the Court has been invoked, it has been to restrain the defendant from marking his goods and selling them as the goods manufactured by the plaintiff, on the ground that such a fraud was an injury to the plaintiff, and tended to mislead and deceive the public. No such case is presented, and the motion for injunction must be denied with costs."

This case has brought out the fact of a great wrong being perpetrated upon the people, by putting the name of a certain manufacturer of high reputation upon goods which he does not manufacture, the object being deception.

Such practices in trade should not only be scouted by the public but a law should be made against them. If a manufacturer stamps, engraves, or paints the word *patent* on an unpatented article of manufacture, for the purpose of deceiving the public, he is liable to a fine of \$100 for every such article sold. This is a just law; it is a protective statute for the benefit of inventors and the public.—Such a law should also be enacted to prevent the public from being deceived by spurious trade-marks, like those developed by the above case. The complaint was most audacious; it was a request that the legal power of this State be exercised to enable the plaintiffs to sell watches that deceived the public, and to stop the sale of the genuine watches. Mr. Brindle in selling to the plaintiffs the false privilege of putting his name on their watches, became, by so doing, a conspirator against the public—he deserves censure equally with them.

Agricultural Science.—Manuring.

It has been taught by Professors of Agricultural Chemistry, and apparently on reasonable grounds, that the very worst way to apply manure was to spread it out on the field and leave it exposed. It was argued that this exposure caused a loss of ammonia by evaporation, hence farmers were taught to plow their manures under as soon as they were spread upon the soil, under the penalty of losing a great deal of their fertilizing properties. An essay on this subject, by Dr. Voelcker, Prof. of Chemistry in the Royal Agricultural College, at Cirencester, Eng., contains statements that will surprise our farmers. He asserts that no loss arises from spreading manure on the surface of a field; on the contrary, he asserts, that if spread upon the field and allowed to lie until it is washed with rains, it is more beneficial than to plow it in at once. When spread out on a field, fermentation is stopped, and volatile matter ceases to escape. In the case of clay soils, he remarks, "I have no hesitation to say, that the manure may be spread even six months before it is plowed in, without losing any appreciable quantity of manuring matters." This is important information to our agriculturists, if correct.

Submarine Telegraphs.

There is a wire from Dover to Calais under the British Channel. There is a wire from Ostend to Dover, under the German Ocean. Dublin and Liverpool are connected by a wire under the Irish Sea. Vienna and Sebastopol are linked by a wire under an arm of the Black Sea. The Ionian Isles are next year to be wired fast to Greece. Algeria is to be fastened to France, Malta to England, and Egypt to Constantinople; New Foundland is connected to Nova Scotia by a wire; and in 1857 the London Telegraph operator will hold in his hand wires running to the four quarters of the globe, as easily as a coachman gathers up the reins of a four-in-hand.