Cotton Manufacture—Its Introduction into America.—The cotton fields of the United States extend from the Atlantic to the Rio Grande, and embrace an extent of 500,000 square miles. The cotton factories now in the United States require 600,000 bales per annum. One factory, at Salem, has 30,000 spindles under one roof. The capital engaged in cotton growing is estimated at $700,000,000. The exports of cotton from the United States exceed in importance that of all other raw materials.

The English government prohibited for many years the export of their cotton machinery. The first introduction of good machinery for spinning cotton into America was by Mr. Slater, an Englishman and practical spinner. He saw an advertisement in a Philadelphia paper, offering a reward for a machine to make cotton rolls, and he accordingly prepared himself to come to America. He brought no machinery with him, but came here and made it from his intimate knowledge of the whole process. He arrived in America January 3rd, 1790, and on the 18th of the same month he commenced making the machinery with his own hands. On the 20th December following, he had three carding frames going, with a drawing and roving frame and 70 spindles. These were driven by an old water wheel at Pawtucket, R. I. In 1793 Mr. Slater became a partner with Messrs. Almy & Brown, and built a small factory.

Our cotton trade is vastly greater than every other, and this greatness depends not so much on the price of the raw material as on its nature and adaptability to be rapidly manufactured by machinery. Cotton is of a peculiar rolling flexible nature, which allows it to be easily doubled and twisted.

When cotton is taken in bales to a factory, it undergoes a most thorough cleaning before it goes into the carding machine. This is called the *willowing* process, but the machine for so cleaning the cotton is named after his imperial majesty of the lower regions; he is indeed a fearful looking fellow, with great iron teeth, and capable of grinding any number of impure rascals.

After it has undergone the willowing operation described, it is taken to the scutching machine and beaten with blades revolving at a great speed, and this opens the fibers and the waste falls through a frame of wire work. It is then taken to the spreading machine where a set of rollers compress the wool for the cards. The carding cylinder has its surface covered with pointed wires, which completely separate and yet gather all the filaments together in a parallel position; they are then detached from the cards and carried between rollers, from which it comes out in the shape of a fine, round, soft snowy continuous wreath. It is then put through between rollers, every succeeding pair revolving faster than the others, and thus the soft wreaths are drawn first between rollers and finally twisted on a fly spindle, and the threads thus formed are received on bobbins.

Cotton is spun on two different spinning frames; the *throstle* and the *mule*. Some very fine yarns are now made in one of the Rhode Island factories—the place where the first cotton factory was erected seems to maintain an advanced position. The cotton yarn intended for warps of webs is reeled from bobbins into what is called a *chain*. A chain of warp is first boiled in warm water to expel all the air from the minute cells of cotton, then it is *beamed*, and is then fit for the dressing frame, where it is starched, dried, and fitted to be put into the power loom. The thread or yarn intended for the weft is not reeled into hanks, but kept on the *cops*.

The weaving operation consists in drawing up each alternate thread, so as to leave a space between the two sets, through which the shuttle with the thread is flung, leaving the thread all along, which is driven up by a slay.

If cotton cloth is intended to be made into blue calico goods, it is carried to the printwork, boiled for some hours in lime water, then it is bleached, then singed of all its surface wool by a red hot copper cylinder, (or by jets of gas), then it is calendered, then printed with a peculiar paste, then dipped in a blue vat, taken out and washed, when the whole surface will be blue, except where the paste was printed on to resist the dye, and after this it is dressed, brought to market, sold, and made into frocks for the rising generation. It may, instead of being dyed, have a number of colors printed on it by rollers, and this is the general way of printing most of our calicoes. White shirting is simply bleached, after it comes from the factory.

Cotton fabrics are the cheapest of all others, and they have been the means of conferring untold benefits upon the millions of the world. The poorest mechanic now wears a shirt farsuperior to that worn by Augustus, or even coming down later by the Dukes, in the days of Queen Bess. At present the cotton manufacture of England make her the center of the exchanges of the world. At some future date this will be said of America, for it is reasonable to suppose that the country which raises nearly all the raw material will yet manufacture her own natural products.

The cotton goods in the Crystal Palace will receive attention in our next.

Renewal of Colt's Patent.

It is stated that the Committee on Patents in Congress have unanimously reported in favor of the extension of Samuel Colt's patent for seven years, reserving to the government of the United States the right to make and manufacture the repeating and revolving arms in all of their own armories for military and naval purposes. The reasons for granting it are stated to be, that the inventor has not had the use of his patent in a profitable degree.—[Washington Sentinel.

[To show to our readers the amount of the difference between the reasons which satisfy the Committee in Congress, in reporting in favor of extension, and those which justified the Commissioner of Patents in refusing the extension of Col. Colt's patent, we present the following able Report of Judge Mason, on the subject, which, for logic and just discrimination, is a model document.

APPLICATION OF SAMUEL COLT FOR AN EXTENSION OF PATENT.

In June, 1836, the applicant obtained a patent for a rotary chamber for fire-arms. In 1839, a second patent was granted for improvements thereon, the most important of which was the loading lever. In 1850 the former of these patents was extended for seven years, and he now asks a like extension for the latter.

The statute requires the applicant in such cases to furnish a statement of his receipts and expenditures "sufficiently in detail to exhibit a true and faithful account of loss and profit in any manner accruing to him from and by reason of said invention." This requirement has not been duly complied with in the present case, but as the decision will turn upon another point, this defect will be no further considered.

The applicant avers "that he never has in any way, directly or indirectly, derived any reward for his said invention, patented in 1839." This statement certainly grows out of a mistaken basis of computation.

The testimony shows that the applicant has manufactured upwards of 100,000 pistols of various sizes. Taking into account the prices at which they have been sold, the cost of manufacture, and the commission allowed for selling, the net profit on these pistols will not fall farshort of $1,000,000.

This testimony stands wholly uncontradicted—no opposing evidence was offered. Even the witnesses by whom these facts were proved were not cross-examined by the counsel for the applicant, although he was present at their examination. The fact then may be taken as conceded and indisputable.

Now the expenses of the applicant, together with his losses and the value of his time and services, are estimated by him at $60,000, which certainly leaves a very handsome balance in his favor. But he takes the ground that all these profits are due to his *first patent*, and none to the *second*.

Therein consists the mistake. All the pistols testified to as above stated, were constructed with the improvements embraced in the second patent. Are these improvements of no value? If so there is no ground for an extension. But if they are valuable they certainly augmented the value of the pistols to which they were attached.

But it will be said that the price of these pistols was not increased in consequence of the addition of these improvements. This may be true, but it does not follow that they have been productive of no benefit. The vender of a commodity often finds it advantageous to diminish its price in order to augment the amount of his sales. Adding to the worth of the commodity while the price remains unchanged, produces the like effect, at all events the pistol with all its improvements, was manufactured and sold as a whole. Large profits have been thereby realized. The applicant cannot be permitted to say these profits have all accrued from the manufacture and sale of the rotary chamber. They result from the whole pistol, as improved, with all its parts. The improvements embraced in the patent now sought to be extended, gave an enhanced value to the arm. This caused its general introduction and enabled the patentee to dispose of the vast number, which has changed his early losses into such abundant profits. A reasonable share of these should be credited to his last invention.

Such a course will appear the more just when it is recollected that the applicant charges the invention we are now considering with the early losses to which he was subjected in the endeavor to bring his pistol into general use. He even goes back in this reckoning to a time anterior to the date of the present invention, and makes up an account in the total of $60,000, to cover his expenses and losses of time and money. This debit accrued in the endeavor to introduce the *whole pistol* including the subjects of both patents. But it would seem further, as though the applicant intended to charge the whole of its debit against the subject of the second patent. At all events, there is no doubt but he intended a full proportion of that charge to stand against the patent now sought to be extended. Why, then, should not the subject of this patent be credited with its share of the profits.

But the applicant avers, under oath, that the patent now sought to be extended has, thus far been of no service, "and that for the purposes of his manufacture and the profits, thereof, he would have been as well off if the improvements described in the patent of 1839, had been public property," if this is correct, it furnishes a strong argument against the extension now sought.

The reason given by the applicant for the conclusion above stated, is, that the patent of 1836 has, till this time, protected the improvements patented in 1839, and that therefore the whole benefit of those improvements could have been monopolized thus far without a patent.

Now the patent of 1836 has been extended to 1857. If the first patent has protected the subject of the second up to this date, it will do the same thing for aught that appears, for four years longer. The profits already received have already accrued within the last six years. From the increased extent of the manufacture and use of these pistols, the profits in the four years to come will probably equal those for the six years past, so that the aggregate amount of profits resulting from the inventions embraced in his two patents, even without an extension of the patent of 1839, will probably amount to near $2,000,000.

The view evidently taken of this subject by the applicant is, that he is entitled to an extension of his patent unless he has derived from the patent already granted a sufficient compensation for his invention. Such is not the law. To justify an extension of this patent, the Commissioner must be satisfied that the applicant, without neglect or fault on his part, has failed to obtain "from the use and sale of his invention" a reasonable remuneration for the time, ingenuity, and expense bestowed upon the same, (Act of 1836, Sec. 18). It matters not then, whether the applicant has realized one dollar in consequence of the patent of 1839, which has been extended to 1857, has protected the subject of the patent of 1839, and thereby enabled the inventor to reap the full benefit of this latter invention, he is no more entitled to an extension than though the whole advantage had grown out of the patent of 1839.

The burden of proof to show that a proper case for an extension exists is thrown upon the applicant. In this respect he has wholly failed. Neither his sworn statement, nor the testimony of the witnesses who were sworn in the case shows that he has not received from his invention a sufficient liberal compensation. But on the contrary a degree of success and prosperity is shown which I can only wish were more generally realized by the authors of all other useful inventions.

The extension is therefore denied.

CHARLES MASON, Commissioner.

U. S. Patent Office, August 29, 1853.

Agricultural Power Machines—The American Threshing Machine in Europe.

The well known Mr. Mechi has sent the following letter to the "British Agricultural Gazette:"—

As I get some half-dozen letters daily on the subject of the American threshing machine, I had better at once state that I have threshed more than 100 qrs. of wheat and 50 qrs. of barley with it, and that it is, in my opinion, in every respect far superior to our English threshing machines, as exhibited at the great shows.—Although a very light implement on carriage wheels, its steadiness under steam power indicates the easy movements of all its parts, and it must be a very enduring machine. All its parts work continuously on the rotary or revolving principle, the only exceptions being two very light portions; whereas, in our great clumsy threshing machines, the jerking or checking movements sway them, in spite of their great weight, in a most destructive power consuming manner. In cleansing and dressing powers we have nothing, in my opinion, to compare with it. A three horse power steam engine, worked at 60 lbs. to 70 lbs. of steam per inch, and 120 revolutions per minute, would, I consider, work it efficiently, and thresh of reaped wheat 6 to 8 qrs. per hour, and of mowed wheat 5 to 7 qrs. It threshed for me last week 84 qrs. wheat in 5½ hours, and 54 qrs. barley in 6½ hours, at 44 to 55 lb. pressure, and two-thirds the power of a six horse engine, In fact, it is a simple question of being able to feed it fast enough.

I see clearly in perspective great changes and improvements in our agricultural steam engines—lighter and cheaper implements, with 100 lbs. per inch steam pressure. The steam cultivator, which progresses favorably, will show that a power equal to 10 pairs of real horses may be concentrated on a pair of wheels, and of a weight less than two tons. When not cultivating, the engine may be driving mill stones, a threshing machine, circular saws, irrigating pumps, or working Fowler's draining plow.

However inconvenient it may be to present arrangements, we must expect our agricultural placidity and stolidity to be assailed by scientific progression, involving more thought, action, and care, and greater ultimate economy. Our village blacksmiths must be transformed into, or make way for, a different class of workmen, capable of comprehending the action of a steam engine, and of repairing its defects. The use of horses in threshing machines is a barbarism, for my experience with Hornsly's and Ransome's steam engines of six horse power has shown them (and no doubt many others), to possess a power equal to that of 16 to 18 good horses. Strange to say, our go-ahead American friends, brought over with them a horse gear in connection with their machine, but after seeing the miserable contrast with steam, they have abandoned it for ever.

It appears the American farmers all use horse power for threshing; no doubt they can keep them cheaper than we can. The American threshing machine will remain at my farm until exhibited at the Smithfield Show, where Mr. Moffit will attend personally.

[This testimony in favor of American threshing machines in England, is indeed flattering to our inventors.