

Eli Whitney and the Need for an Invention

As Eli Whitney left New England and headed South in 1792, he had no idea that within the next seven months he would invent a machine that would profoundly alter the course of American history. A recent graduate of Yale, Whitney had given some thought to becoming a lawyer. But, like many college graduates of today, he had debts to repay first and needed a job. Reluctantly, he left his native Massachusetts to assume the position of private tutor on a plantation in Georgia.

There Whitney quickly learned that Southern planters were in desperate need of a way to make the growing of cotton profitable. Long-staple cotton, which was easy to separate from its seeds, could be grown only along the coast. The one variety that grew inland had sticky green seeds that were time-consuming to pick out of the fluffy white cotton bolls. Whitney was encouraged to find a solution to this problem by his employer, Catherine Greene, whose support, both moral and financial were critical to this effort. At stake was the success of cotton planting throughout the South, especially important at a time when tobacco was declining in profit due to over-supply and soil exhaustion.

Whitney knew that if he could invent such a machine, he could apply to the federal government for a patent. If granted, he would have exclusive rights to his invention for 14 years (today it is 20 years), and he could hope to reap a handsome profit from it.

The Constitution and Patent Law

In [Article I, Section 8, Clause 8](#), the Constitution empowers Congress "To promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." Patent law must carefully balance the rights of the inventor to profit from his or her invention (through the grant of a temporary monopoly) against the needs of society at large to benefit from new ideas.

The patent bill of 1790 enabled the government to patent "any useful art, manufacture, engine, machine, or device, or any instrument thereon not before known or used." The patent act of 1793 gave the secretary of state the power to issue a patent to anyone who presented working drawings, a written description, a model, and paid an application fee. Over time the requirements and procedures have changed. Today the U.S. Patent and Trademark Office is under the auspices of the Commerce Department.

Eli Whitney Patents His Cotton Gin

In hopes of making a patentable machine, Whitney put aside his plans to study law and instead tinkered throughout the winter and spring in a secret workshop provided by Catherine Greene. Within months he created the cotton gin. A small gin could be hand-cranked; larger versions could be harnessed to a horse or driven by water power. "One man and a horse will do more than fifty men with the old machines," wrote Whitney to his father. . . . "Tis generally said by those who know anything about it, that I shall make a Fortune by it."

But patenting an invention and making a profit from it are two different things. After considering possible options, Whitney and his business partner, Phineas Miller, opted to produce as many gins as possible, install them throughout Georgia and the South, and charge farmers a fee for doing the ginning for them. Their charge was two-fifths of the profit -- paid to them in cotton itself.

And here, all their troubles began. Farmers throughout Georgia resented having to go to Whitney's gins where they had to pay what they regarded as an exorbitant tax. Instead planters began making their own versions of Whitney's gin and claiming they were "new" inventions. Miller brought costly suits against the owners of these pirated versions but because of a loophole in the wording of the 1793 patent act, they were unable to win any suits until 1800, when the law was changed.

Struggling to make a profit and mired in legal battles, the partners finally agreed to license gins at a reasonable price. In 1802 South Carolina agreed to purchase Whitney's patent right for \$50,000 but delayed in paying it. The partners also arranged to sell the patent rights to North Carolina and Tennessee. By the time even the Georgia courts recognized the wrongs done to Whitney, only one year of his patent remained. In 1808 and again in 1812 he humbly petitioned Congress for a renewal of his patent.

The Effects of the Cotton Gin

After the invention of the cotton gin, the yield of raw cotton doubled each decade after 1800. Demand was fueled by other inventions of the Industrial Revolution, such as the machines to spin and weave it and the steamboat to transport it. By midcentury America was growing three-quarters of the world's supply of cotton, most of it shipped to England or New England where it was manufactured into cloth. During this time tobacco fell in value, rice exports at best stayed steady, and sugar began to thrive, but only in Louisiana. At midcentury the South provided three-fifths of America's exports -- most of it in cotton.

However, like many inventors, Whitney (who died in 1825) could not have foreseen the ways in which his invention would change society for the worse. The most significant of these was the growth of slavery. While it was true that the cotton gin reduced the labor of removing seeds, it did not reduce the need for slaves to grow and pick the cotton. In fact, the opposite occurred. Cotton growing became so profitable for the planters that it greatly increased their demand for both land and slave labor. In 1790 there were six slave states; in 1860 there were 15. From 1790 until Congress banned the importation of slaves from Africa in 1808, Southerners imported 80,000 Africans. By 1860 approximately one in three Southerners was a slave.

Because of the cotton gin, slaves now labored on ever-larger plantations where work was more regimented and relentless. As large plantations spread into the Southwest, the price of slaves and land inhibited the growth of cities and industries. In the 1850s seven-eighths of all immigrants settled in the North, where they found 72% of the nation's manufacturing capacity. The growth of the "peculiar institution" was affecting many aspects of Southern life.

Epilogue

While Eli Whitney is best remembered as the inventor of the cotton gin, it is often forgotten that he was also the father of the mass production method. In 1798 he figured out how to manufacture muskets by machine so that the parts were interchangeable. It was as a manufacturer of muskets that Whitney finally became rich. If his genius led King Cotton to triumph in the South, it also created the technology with which the North won the Civil War.

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To the Honourable the Senate and House of
Representatives in Congress assembled,
The Memorial of Eli Whitney,
Respectfully sheweth,
That your memorialist is the inventor of
the machine with which the principal part of
the Cotton raised in the United States is cleared &
prepared for market. — That being in the State
of Georgia in the year 1793, he was informed
by the planters, that the agriculture of that State
was unproductive, especially in the interior, where
it produced little or nothing for exportation. —
That attempts had been made to cultivate
cotton; but that the prospect of success was
not flattering. — That of the various kinds
which ^{had} been tried in the interior, none of
them were productive, except the Green
seed Cotton, which was so extremely dif-

difficult to clean, as to discourage all further attempts to raise it. — That it was generally believed this species of cotton might be cultivated with great advantage, if any cheap and expeditious method of separating it from its seeds could be discovered — and that such a discovery would be highly beneficial both to the public and the inventor. —

These remarks first drew the attention of your memorialist to this subject and after considerable reflection he became impressed with a belief that this desirable object might be accomplished. —

At the same time he could not but entertain doubts, whether he ought to suffer any prospect of so precarious a nature, as that which depends upon the success of new projects, to divert his attention from a regular profession. —

About this time Congress passed a New Patent Law, which your memorialist

considered as a premium offered to any citizen who should devote his attention to useful improvements and as a pledge from his country, that in case he should be successful, his rights and his property would be protected. —

Under these impressions your memorialist relinquished every other object of pursuit and devoted his utmost exertions to reduce his invention, which, as yet was little more than a floating image of the mind, to practical use — and fortunately for the Country he succeeded in giving form to the conceptions of his imagination and to matter a new mode of existence — and the result of this new modification of matter, was every thing that could be wished —

After reducing his theory to practice, by effectual & successful experiments your memorialist took out a Patent. —

— So alluring were the advantages developed by this invention that in a short time the whole attention of the planters of the middle and upper country, of the Southern States, was turned to planting the Green Seed Cotton —
 — The means furnished by this discovery of cleaning that species of cotton, were at once so cheap and expeditious, and the prospect of advantage so alluring, that it suddenly became the general crop of the country —

Little or no regard, however, was paid to the claims of your memorialist — and the infringement of his rights became almost as extensive as the cultivation of cotton — He was soon reduced to the disagreeable necessity of resorting to courts of justice for the protection of his property —

After the unavoidable delays which usually attend prosecutions of this kind

and a laboured trial, it was discovered that the Defendants had only used — and that as the law then stood they must both make and use the Machine, or they could not be liable — the Court decided that it was a fatal, though inadvertent defect in the law and gave judgment for the Defendants. —

It was not until the year 1800, that this defect in the law was amended. —

— Immediately after the amendment of the law, your memorialist commenced a number of suits; but so effectual were the means of procrastination and delay, resorted to, by the Defendants, that he was unable to obtain any decision on the merits of his claim until the year 1807 — not until he had been eleven years in the Law & thirteen years of his patent-term had expired. —

A compromise has been made with several of the States, to which your memorialist has assigned his right and relinquished all further claim; but from the state in

which he first made and introduced his invention, and which has derived the most signal benefits from it, he has realized nothing — and from no state has he received the amount of half a Cent per pound, on the cotton cleaned with his machine, within that state, in one year.

Estimating the value of the labour of one man at twenty cents per Day, the whole amount which has been realized by your memorialist for his invention, is not equal to the value of the labour saved in one hour by his machines, now in use, in the U States.

Permit your memorialist further to remark that by far the greatest part of the cotton raised in the United States has been & must of necessity continue to be the Green Seed. — That, before the invention of your memorialist, the value of this species of cotton, after it was cleaned, was not equal to the expense of cleaning it — that since, the cultivation of this species has been a great

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source of wealth to the community & of riches to thousands of her citizens — That as a labour-saving machine it is an invention which enables one man to perform in a given time that, which would require a thousand men, without its aid, to perform in the same time. — in short that it furnishes to the whole family of mankind the means of procuring the article of cotton, that important raw material, which constitutes a great part of their clothing at a much cheaper rate —

Your memorialist begs leave further to state that a confident expectation that his case would be embraced in the general law which Congress has, for several years, had under consideration, has prevented his making an earlier application. — That the expenses incurred by him in making and introducing this useful improvement and establishing his claim to its invention, have absorbed a great proportion of what he has received, from those States with which he has made a compromise —

That he humbly conceives himself fairly
intitled to a further remuneration from his
Country — and that he ought to be admitted
to a more liberal participation with his
fellow citizens, in the benefits of his invention —

He therefore prays your Honourable
Body, to take his case into consideration,
and authorize the renewal of his Patent,
or grant such other relief, as Congress in
their wisdom and their justice may deem
meet and proper —

Eli Whitney

Washington 16th Apr. 1812.

Patron of Eli Whitney

20th Apr. 1812

Presented.

22nd Apr. 1812

Reported to the Committee

Mr. Smith

Mr. Hall of Georgia

Mr. Nelson, and

Mr. Gray.

Bill introduced

of 1812

to give

Miscellaneous

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12th Congress

(1812-13)