

AMERICAN TEXTILE MACHINERY:

ITS EARLY HISTORY, CHARACTERISTICS, CONTRIBUTIONS TO  
THE INDUSTRY OF THE WORLD, RELATIONS TO  
OTHER INDUSTRIES, AND CLAIMS FOR  
NATIONAL RECOGNITION.

5-5881

By JOHN L. HAYES, LL.D.,

SECRETARY OF THE NATIONAL ASSOCIATION OF WOOL MANUFACTURERS.

REPUBLISHED FROM THE BULLETIN OF THE NATIONAL ASSOCIATION OF  
WOOL MANUFACTURERS.

CAMBRIDGE:

UNIVERSITY PRESS, JOHN WILSON AND SON.

1879.

TO

**WOOLEN MANUFACTURERS**

AND

**BUILDERS OF WOOLEN MACHINERY.**

---

On December 15, 1826, letters patent were issued by the United States to John Goulding, for a new and useful improvement in the mode of manufacturing wool or other fibrous materials. These letters patent were re-issued July 29, 1836, and expired in 1840. Before the patent expired, application was made to the then Commissioner of Patents by the patentee's agent, asking when he must apply to get an extension of his patent, and owing to erroneous information given to him by the commissioner, he did not apply in season to conform to the law, although he applied within the time stated by the commissioner. Thus, Mr. Goulding was left without any remedy, except by an act of Congress. In 1848, an act for his relief passed one House, but, it being about the time of the adjournment of Congress, it did not pass the other House.

From that time to 1862, Mr. Goulding made frequent applications to Congress, but without any definite result.

# CONTENTS.

	PAGE
RESTRICTIVE LAWS OF ENGLAND . . . . .	6
INTRODUCTION OF TEXTILE MACHINERY TO THE UNITED STATES.	
First Unsuccessful Efforts . . . . .	10
Samuel Slater's Enterprise . . . . .	13
Extension in Massachusetts and Rhode Island . . . . .	17
Introduction of Woollen Machinery . . . . .	19
Introduction of the Power Loom . . . . .	24
Machinery at Waltham . . . . .	27
Machinery at Lowell, and Factory Repair Shops . . . . .	29
Establishment of Independent Machine Shops . . . . .	30
CHARACTERISTICS OF AMERICAN TEXTILE MACHINERY . . . . .	32
CONTRIBUTIONS TO THE TEXTILE INDUSTRY OF THE WORLD.	
I. <i>Cotton Machinery:</i>	
Cotton Gin . . . . .	36
Card-setting Machine . . . . .	36
Arnold's Compound Gear . . . . .	37
Batchelder's Stop Motion . . . . .	38
Speeders . . . . .	38
Danforth's Cap Spinner . . . . .	38
Ring Spinning . . . . .	39
Spindles . . . . .	40
Mules . . . . .	41
Cards . . . . .	41
Eveners, Shears, Openers, Warp Spoolers . . . . .	42
Looms . . . . .	42
Calico Printing Machinery . . . . .	45
Results . . . . .	46

II. <i>Woollen Machinery:</i>		PAGE
Helicoidal Shearing Machine . . . . .		47
Goulding's Endless Roving . . . . .		47
Burring Machinery . . . . .		48
Felting Machinery . . . . .		49
Fancy and Carpet Looms . . . . .		49
Knitting Machines . . . . .		53
Worsted Machinery . . . . .		53
Couillard's and Simpson's Comber . . . . .		54
General Auxiliary Machinery . . . . .		54
RELATIONS TO OTHER INDUSTRIES.		
Manufacture of Machine Tools . . . . .		55
Locomotives . . . . .		57
Steam Fire Engines . . . . .		58
Firearms . . . . .		59
Agricultural Machinery . . . . .		60
CLAIMS OF AMERICAN TEXTILE MACHINERY FOR NATIONAL RECOGNITION.		
Direct Value of the Industry . . . . .		62
Present Duty and its Adequacy . . . . .		63
Arguments for Reduction of Duty . . . . .		65
Manufacture of Machinery at the South to be encouraged . . . . .		68
Free Machinery no Boon . . . . .		69
Slight Burden of the Duty . . . . .		70
CONCLUSION . . . . .		70

## AMERICAN TEXTILE MACHINERY:

ITS EARLY HISTORY, CHARACTERISTICS, CONTRIBUTIONS TO  
THE INDUSTRY OF THE WORLD, RELATIONS TO OTHER  
INDUSTRIES, AND CLAIMS FOR NATIONAL RECOGNITION.

---

THE value to a nation of its possession of a perfected textile industry is but feebly expressed by the number of operatives it employs, the money value of its products, or the sum of comforts — if it were possible to calculate them — which the people of a nation derive from an abundant and cheap supply of domestic textile manufactures. The census of 1870 shows that the cotton and woollen manufacture of the United States, with their branches, the worsted, carpet, hosiery, and print industries, employed 264,122 hands, and produced a total value of \$449,514,619.

The operatives directly employed were but about  $\frac{3}{8}$  of 1 per cent of our total population of 38,558,371, and the value of the product about  $10\frac{3}{5}$  per cent of our total manufacturing industry, namely, — \$4,232,325,442, and but about  $18\frac{4}{10}$  per cent of that produced by the single industry of agriculture, \$2,447,538,658.

When we look at the comparatively small proportion which the textile manufactures bear to our total productive industry, the question naturally arises, why it is that the textile industry is the first object of acquisition and encouragement by all

obtaining a re-issue of his patent, in 1836, he lost all benefit from it prior to that time, and thus for ten years, from 1826 to 1836, the manufacturers of goods had, without pay, the unlimited use of his invention.

Mr. Goulding's invention consisted in first devising a plan of converting wool into a continuous sliver, sufficiently attenuated and completely mixed for spinning, by means of carding alone, without drawing the sliver, and having sufficient consistency for the operation of the jack without intermediate spinning; and having devised the general mode of operation, he modified the existing carding machine and the jack so as to fit them to perform their respective parts in his *new plan of operations*.

Mr. Goulding's patent secures to him the machinery on *each* card for twisting or condensing, winding and taking away the sliver, or roving, while it is being delivered from the card; also, the machinery for feeding the second breaker; also, for feeding the third card, or finisher, and unwinding the sliver, or roving, on the jack for spinning.

*1st Breaker.* — The twisting or condensing on the first breaker is effected by means of a revolving tube, and the sliver, or roving, is then carried between delivering rollers and wound on a bobbin, being evenly wound upon the bobbin, either by carrying the bobbin and drum backwards and forwards, or by passing the sliver, or roving, between guides, to which a similar lateral movement is communicated.

*2d Breaker.* — Any number of these bobbins are placed and fed into the second breaker, being guided between dividing pins, and the same kind of machinery

is used in the second, for twisting or condensing, winding and taking away the sliver, as in the first breaker.

*Finisher.* — The bobbins produced by the second breaker are fed separately into the third carding machine or finisher, as described in the patent, and on this finisher each sliver is condensed by a revolving tube and carried between delivering rollers and wound on a long bobbin as described in the patent. Any required number of strands can be produced on the finisher.

*Jack.* — These long bobbins are placed on the jack, and unwound by the periphery of a drum, the roving passing to the spindles through a pair of jaws or rollers — the jaws or rollers closing upon and retaining the roving at proper times.

Instead of the above means of condensing, the patent specifies other means, as, by passing the sliver between pulleys or bands or rubbing rollers, or using other mechanical equivalents, and also, instead of the feeding of the cards as described, the patent states that drums actuated by the machinery, may be used in unwinding the rovings or slivers from the bobbins, in all cases where the rovings or slivers are too weak to bear drawing off from the bobbins without such help, and whether such slivers or rovings have been made by the machinery described in the patent, or by other methods.

Either mode of condensing or feeding, and any mechanical equivalents for any part of the machinery, are all alike covered by the patent.

The suit of *Goulding vs. Bickford & Lombard*, which

was tried in January, 1864, in the United States Circuit Court, at Boston, before Judge Sprague, settled the validity of this patent. That suit was against the builders of the machinery for machines built by them between August 30, 1862, and February 7, 1863. The case was opened on January 26, 1864, to the jury, and after the plaintiff had put in his evidence, the defendants' counsel admitted that they had no substantial defence, and must submit to a verdict for the plaintiff, and a verdict was accordingly rendered for the plaintiff for \$2,100 damages. Every conceivable defence that could be set up by the defendants, was relied upon, but mainly the defence that the patentee was not the first inventor. The suit was defended by the leading woolen corporations of New England, and this verdict in favor of the patent settles its validity.

B. R. Curtis, <sup>Boston</sup> E. W. Stoughton, of New York, and J. D. Ball, <sup>Boston</sup> were counsel for plaintiff.

J. G. Abbott, <sup>Boston</sup> George Gifford, and R. M. Blatchford, of New York, and J. B. Robb, <sup>Boston</sup> for defendants.

Hon. J. G. Abbott, in submitting to a verdict for the plaintiff, addressed the Court as follows: —

“May it please your Honor, since the adjournment I have had a consultation with the witnesses for the defence, and with my clients and associates, and I desire to say, for the purpose of justifying my clients, and for the purpose of justifying the counsel, that this defence was commenced and prosecuted on the belief — and a belief founded upon what was supposed to be a sufficient statement of the evidence (in some cases affidavits having been made) that the evidence was suffi-



that this is not a real judgment, and that the money is not to be collected. The judgment is to be paid according to its face. It is not a compromise at all, in any such sense."

*Hon. J. G. Abbott.* — "No, sir. I ought to have stated that. We have proceeded throughout this whole matter upon that basis, that one person or another person was not to buy his peace for the purpose of getting himself out of a bad position, leaving others, perhaps, in a worse position than before. The arrangement has been made in perfect good faith, and upon the ground that we were compelled to say to our clients that the evidence was not sufficient to maintain their defence."

Any person infringing the patent subjects himself to threefold damages, as will be seen by reference to an extract from the patent law, hereto appended, and also subjects himself to an injunction from the Court prohibiting him from using the machinery; and the parties in interest have determined, and hereby give notice to all persons who are using the machinery without license to obtain licenses immediately, and that in default of so doing they subject themselves to injunction and damages, and suits will be commenced against them accordingly without delay.

The present royalty or patent fee, established since the spring of 1863, is—

\$35 on first breaker.

\$35 on second breaker.

\$2.50 for each strand on the third card or finisher.

20 cents for each spindle on the jack.

REPORT FROM THE COMMITTEE ON PATENTS, TO THE  
HOUSE OF REPRESENTATIVES.

37TH CONGRESS, } HOUSE OF REPRESENTATIVES. } REPORT  
2d Session. } } No. 47.

JOHN GOULDING.

[To accompany bill H. R. No. 329.]

MARCH 5, 1862.—Ordered to be printed.

HON. JOHN H. RICE, from the Committee on Patents,  
made the following

REPORT:

The petitioner, in his memorial, sets forth that he was the inventor of certain machinery, by means whereof great saving is effected in the manufacture of wool and other fibrous substances, and greater perfection attained in the fabrics produced therefrom. That, in the preparation of said machinery and the necessary experiments for completing and bringing the same into use, he expended much money and seven years of the most active period of his life. That, on the fifteenth day of December, A. D. 1826, he obtained letters patent for his invention and machinery for the term of fourteen years.

He further states in his memorial that, after obtaining said letters patent, he made use of all reasonable

effort to avail himself beneficially thereof by sales of his rights under said grant, but with only limited and partial success, all the proceeds thereof amounting to the sum of \$5,150 of which sum \$150 was the result of a compulsory sale of this and other patent rights for the benefit of his creditors, in A. D. 1839, under the insolvent laws of Massachusetts, where he then resided, while he estimates his time and expenditures in bringing his said invention into practical use at the sum of \$10,500.

He alleges as reasons why his sales were thus limited, the defects in the statute of 1793, under which the grant was made, and the inadequate protection afforded thereby, and the combinations of capitalists engaged and interested in woollen manufactures, with whom he was forced to contend in extensive and costly litigation, and finally resulting in pecuniary ruin and bankruptcy to himself, and the free use by his opponents and all manufacturers of "an invention which has wrought such a change in the manufacture of wool, that where the carding and spinning of one pound formerly cost from twelve to fifteen cents, the same may now be done, and better done, by aid of this machinery, for three cents." The memorialist further says that he intended to procure a renewal and extension of his said letters patent upon the expiration thereof in December, A. D. 1840, and employed one Isaac Thayer as his agent for that purpose, and that he fully believed himself entitled thereto under the eighteenth section of the Act of 1836, which provides a mode of relief for those patentees who have not been adequately remunerated:

that in June, 1840, his said agent addressed a letter to Henry L. Ellsworth, Esq., then Commissioner of Patents, inquiring when the application for such extension must be made. The Commissioner informed him in reply, that the application might be made at any time before the patent should expire; that relying upon this statement of the Commissioner, he delayed action until September 23, 1840, when he filed in the office of the Commissioner of Patents, at Washington, his petition and all needful evidence and documents to effect such extension, but that on examination thereof the Commissioner of Patents decided that the application could not be entertained for the reason that it was too late to give the requisite notice before the expiration of the patent; and that being thus misinformed and misled by the Commissioner, he was deprived of the hearing and adjudication provided by the law, and which he believes would have resulted in the granting of the extension prayed for.

The Committee, upon examination of the evidence adduced by the memorialist, have become satisfied of the truth of the statements and allegations set forth in his petition. That this invention has been and is of great practical value and utility to the productive industry of the country; that it is now in universal and constant use by manufacturers; that it has been of vast benefit to manufacturers and capitalists in affording them greater profits and better investments, and to the people cheaper goods; and that it has in a great degree contributed to our successful competition with foreign manufacturers, by which we now not only "clothe

ourselves," but compete for the markets of the world. That the inventor has not received adequate compensation for this great service; that ungenerous and formidable combinations were organized to defeat him of his just rights, and by those to whom he has been a benefactor; that they sent a special agent to Europe to hunt up a "prior inventor," thereby to rob him of his just rights and to barter away the honors rightly due to him and to our country; but that finally, upon the report and recommendation of their own committee, "the manufacturers of New England" were forced to acknowledge the validity of his claims, and to pay him about the sum of five thousand dollars.

The correspondence at the Patent Office shows that the memorialist's agent, Thayer, wrote to the Commissioner of Patents, June 20, 1840, informing him of his employment, and for what purpose, and inquiring whether the petitioner's interest would be jeopardized by further delay in making his application for extension of his letters patent. June 22, 1840, the Commissioner, in reply, wrote: \* \* \* "the application for renewal may be made at any time before the patent expires." Under this advice Mr. Thayer delayed action until September 23, 1840, when he filed the application and papers at the Patent Office, and on December 14, 1840, deposited in the United States Mint at Philadelphia, the sum of forty dollars to the credit of the patent fund, being the amount required by law to be paid to procure such extension, and immediately forwarded a certificate thereof to the Commissioner of Patents. December 16, 1840, the Commissioner addressed the

agent, and said: "The law forbids the Commissioner to act in a case where the patent has expired." December 22, 1840, the Commissioner again says: "I regret that it is not in my power to grant every relief to Mr. Goulding," &c. ; and in regard to the forty dollars, "It seems hard that neither the Commissioner nor the Secretary of the Treasury can refund the money they cannot use for your benefit; and to remedy this grievance I have submitted a bill to the consideration of the Committee on Patents, who, I trust, will report a satisfactory relief." December 29, 1840, he says in a letter to Mr. Thayer: "I regret you were misled by my letter of June 22, 1840, if that be the case. Inasmuch as all action now by this office would be void, I can only remark that Congress alone can grant relief by authorizing Mr. Goulding to apply for renewal, notwithstanding the time has expired."

It may be said that the act of 1836, being a public act, every person interested in its execution was bound to take notice of its contents and govern themselves accordingly. This is doubtless true of all public laws in their theoretical and strictly legal construction and application; but when a private citizen, not having ready access to the statute books, applies to a public functionary, whose duty it is to administer a specific law, for instruction as to his rights under it, and the mode of securing them, the committee think that he has a right to correct information for his guidance. In this case the information given was clearly erroneous, and the committee cannot doubt but that for this the petitioner would have presented his application in

season to have secured the hearing and adjudication thereon to which he was entitled. What the result would have been we cannot know, nor is it necessary that we express our opinion thereon, and we forbear the expression of any opinion as to what should be the result of a new application if permitted to be made. He clearly had a right to be heard, and it was his intention to avail himself thereof, but was deterred from so doing, until too late, by erroneous information (given without a design to mislead, it is admitted) from an official source.

The committee have no evidence that any action was had upon the bill prepared by the Commissioner for the relief of the memorialist, and it appears that he did not make any further effort for the renewal and extension of his grant until March 21, 1848, when this petition was presented to Congress. This long delay or neglect is one strong argument militating against the application for relief here sought, and under almost any other circumstances would be an insuperable objection to granting the same. The memorialist alleges in excuse and extenuation for this apparent *abandonment* of his claim, extreme poverty, and his continued hope that relief would be afforded him by Congress through the efforts of the Commissioner, who was anxious that the *laches* which he had inadvertently caused might be remedied. This plea of *poverty*, "the inventor's birth-right," is amply sustained by the evidence. It appears that he has spent the most of his life "in seeking out new inventions," and has discovered this and others of great value to his country and to the world, but that he

has not found the "philosopher's stone," nor received pecuniary reward proportionate to his labors; and that now, at the age of "three score and ten," he is without adequate means for his comfortable passage over the short remainder of his "journey of life."

At the first session of the 30th Congress a bill was reported from the Committee on Patents for the relief of the petitioner, which went to that tomb of blasted hopes, the "Private Calendar," from which there was no resurrection; and since then his memorial has been successively referred to the same committee, January 22, 1850; January 9, 1852; and January 30, 1862, without any action thereon, as we can find, until the present session, owing, undoubtedly, to the fact that the memorialist has not until now (from pecuniary inability, as he alleges), given the matter his personal attention, or employed an agent to attend to it for him.

From a full examination of the case the committee is satisfied that the memorialist should, even at this late day, have the benefit of the 18th section of the Act of 1836, and therefore propose to restore to him the privilege to make application for the extension and renewal of his said letters patent under said section, in the same manner as if he had done so seasonably before the expiration thereof, saving and reserving the rights of all persons who have the said invention in use, and protecting them against all claims therefor; and report a bill accordingly.



## CHAPTER LXXXVIII/

## AN ACT FOR THE RELIEF OF JOHN GOULDING.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That John Goulding be and hereby is authorized to apply to the Commissioner of Patents for a renewal and extension, for the term of seven years from the time of such renewal and extension, the letters patent heretofore granted to him for his improvements in machinery for the manufacture of wool and other fibrous substances, and the said Commissioner of Patents is hereby authorized and empowered to grant such renewal and extension, or withhold the same, under the existing laws, in the same manner as if the application therefor had been seasonably made: Provided that such renewal and extension shall not have the effect or be construed to restrain persons who may be using the machinery invented by said Goulding, at the time of the renewal and extension hereby authorized, for continuing the use of the same, nor subject them to any claim or damage for having so used the same.

[*Approved May 30, 1862.*]

## EXTENSION OF THE PATENT.

WHEREAS, upon the petition of John Goulding, of Worcester, in the State of Massachusetts, for the extension of the patent granted to him on the 15th day of

December, 1826, and re-issued on the 29th day of July, 1836, the undersigned, in conformity with the 18th section of the act of Congress, approved the 4th day of July, 1836, entitled "An Act to promote the progress of the useful arts, and to repeal all acts and parts of acts heretofore made for that purpose," and the act approved the 27th day of May, 1848, entitled "An Act to provide additional examiners in the patent office and for other purposes," and the act approved the 30th day of May, 1862, entitled "An Act for the relief of John Goulding," did, on this 30th day of August, 1862, decide that said patent ought to be extended:

Now, therefore, I, David P. Holloway, Commissioner of Patents, by virtue of the power vested in me by said acts of Congress, do renew and extend the said patent, and certify that the same is hereby extended, for the term of seven years from and after this 30th day of August, 1862, which certificate being duly entered on record in the patent office, the said patent has now the same effect in law as though the same had been originally and lawfully granted for the term of seven years from and after said 30th day of August, subject, however to the proviso named in said act, approved the 30th of May, 1862.

In testimony whereof I have caused the seal of the patent office to be hereunto affixed, this 30th day of August, 1862, and of the independence of the United States the eighty-seventh.

D. P. HOLLOWAY,

[SEAL OF PATENT OFFICE.]

*Commissioner.*

## CERTIFICATE OF CLERK OF U. S. CIRCUIT COURT.

I, the undersigned, Clerk of the Circuit Court of the United States for the First Circuit within and for the District of Massachusetts, hereby certify that the case of *Goulding vs. Bickford & Lombard*, which was an action at law for the infringement of the letters patent, issued by the United States to John Goulding, Dec. 15, 1826; re-issued July 29, 1836; and extended Aug. 30, 1862, — was opened to the jury on Jan. 26, 1864, and that a verdict was rendered in said case for the plaintiff, on January 28, 1864, for \$2,100 damages.

Witness my hand this third day of February, A. D., 1864.

N. J. CLIFFORD,

[SEAL.]

*Clerk of the U. S. Circuit Court, Mass. District.*

---

 EXTRACT FROM THE PATENT LAW.

SECTION 14. *And be it further enacted*, That whenever in any action for damages (for) making, using, or selling the thing whereof the exclusive right is secured by any patent which may hereafter be granted, a verdict shall be rendered for the plaintiff in such action, it shall be in the power of the Court to render judgment for any sum above the amount found by such verdict as the actual damage sustained by plaintiff, not exceeding THREE times the amount thereof, according to the circumstances of the case, with cost; and such damages

may be recovered by action on the case, in any Court of competent jurisdiction, to be brought in the name or names of the person or persons interested, whether as patentees, assignees, or as grantees of the exclusive right within or throughout a specified part of the United States.

The cards and jacks in use before Aug. 30, 1862, which is the date of the extension of the patent, can be used without paying the patent fee, but all built since that date must pay.

All applications for licenses must be made to

JORDAN, MARSH & CO.,

NO. 148 AND 154 DEVONSHIRE ST., BOSTON.

FEBRUARY 3, 1864.