The first patent granted under the Patent Act of 1790 went to Samuel Hopkins for an improvement in manufacturing potash. This response to chemical technology was very atypical. Although several successful patents were issued for salt making, distilling, and other chemical production processes, mechanical technology long received the major attention. Hopkins's improvement involved a new "Apparatus and Process," the essence of which was a furnace for burning the wood ashes before boiling them. Hopkins published a paper on the invention but found himself unable to sell very many people on it. The process proved relatively ineffective.

Eli Whitney's cotton gin was patented under the Act of 1793 on March 14, 1794 (fig. 5–3). This device was exceedingly successful as a mechanism; it has been credited with turning cotton production into a prosperous business and with fastening slavery upon the South. Some have even charged it with responsibility for moving the nation toward the Civil War.


*Fig. 5–3. Eli Whitney*

There had been gins before Whitney's, but none could handle the short staple cotton that could be raised most easily in many of the southern states. Whitney's could. It offered major labor savings over the costs of hand separation of seeds from the cotton fiber.

The patent did not bring wealth to Whitney, however, despite the immediate and wide application of his gin. The problem was that the device was too easily copied. Men who understood the basic design could reproduce and sell it without needing a model or measured drawings in hand. They did not pay Whitney his required royalties, nor did individuals who made their own gins. Whitney tried to take the violators to court, but he used up all his profits in fighting their patent infringements. Although a very simple and successful invention, the gin was a patent failure.

The Smithsonian Whitney cotton gin model was made very early, but it is not a patent model (fig. 5–4). It was used to demonstrate the gin. The hand crank moved the cotton to the sawtooth wheels, which pulled the fiber through the wire slots, separating it from the seeds that fell to the bottom of the gin. The function of the brushes was to move the cotton and to clean it off the sawteeth (fig. 5–5).

Working gins were larger, of course, often about three feet square and sometimes powered by steam rather than hand operated. They became an integral part of cotton production, perhaps the most conspicuous new technology in agricultural production and processing that was American in origin. The Georgia gin was initially built before 1860 and powered by a horse whim on the level below the gin. Its rough appearance contrasts sharply with the well-finished Smithsonian gin model and offers a more realistic sense of ginning in the old South (fig. 5–6).

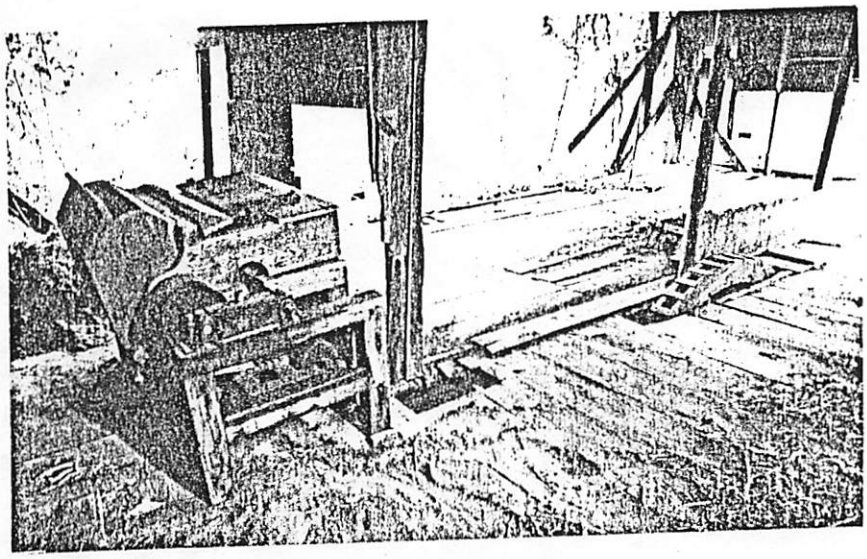
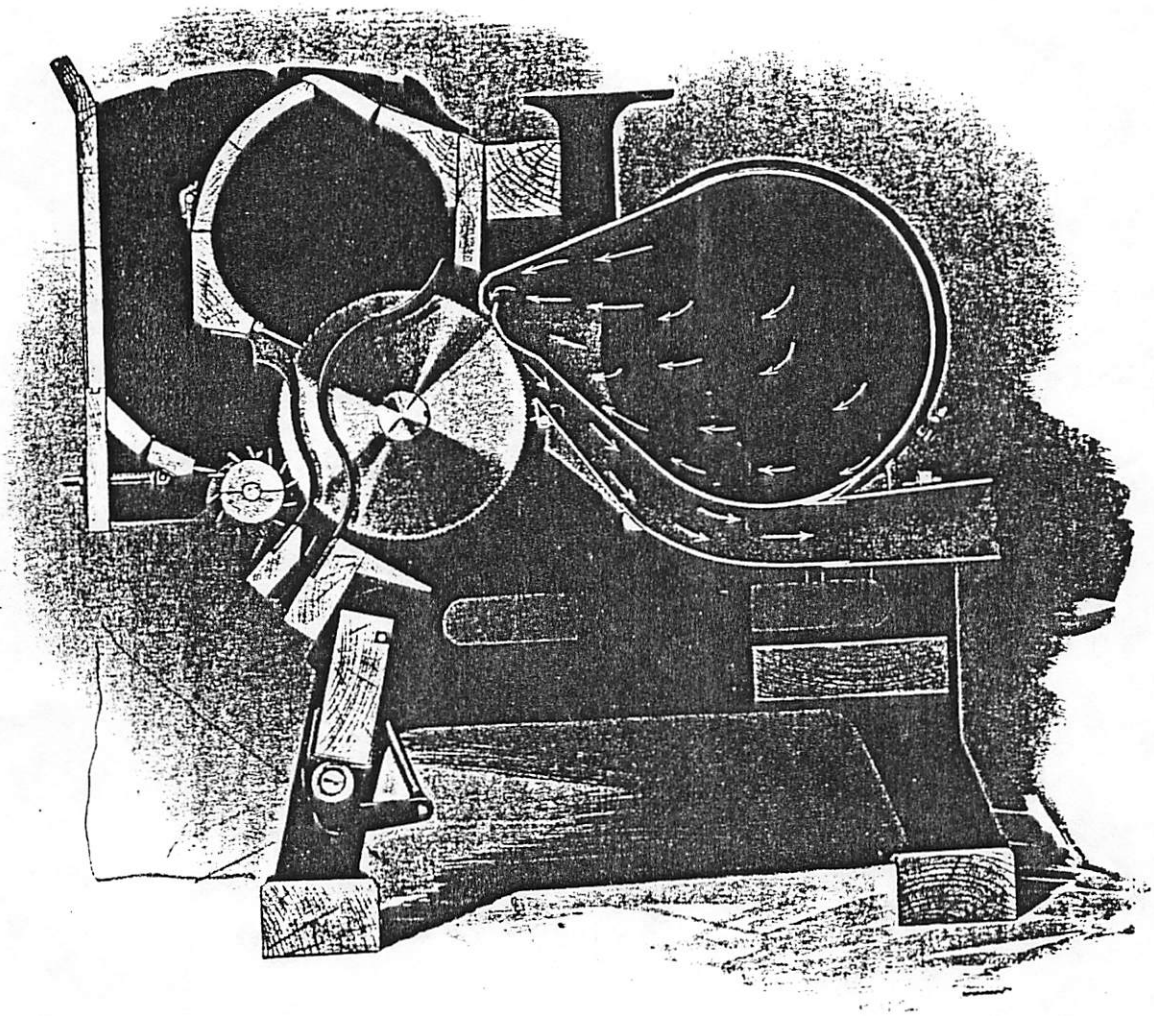


*Fig. 5–6. Antebellum Georgia cotton gin*

The first steamboat patents failed just as badly, but in a more complex manner. Steamboat inventors and promoters became vociferous during the writing of the United States Constitution and remained so while the 1790 Patent Act was written and the first patents granted under it. Members of the Constitutional Convention and the early congresses were sensitive to the steamboat question, which influenced their actions. Steamboat advocates kept pressing for an effective patent system.

The result was not what any of them sought. Within the first year the two leading contenders, John Fitch and James Rumsey, each received a patent, John Stevens got three related patents, and three more were granted for seemingly related improvements to the antique Savery engine. Fitch's patent ostensibly covered steamboats in general; in fact, it conflicted directly with Rumsey's, which gave him specific protection for water and air jet steam propulsion. Before these were issued, Rumsey had gone to England where he obtained a British patent; afterward Fitch went to France and got a French patent. Fitch's 1790 boat, the *Perseverance,* which ran over 2,000 miles on commercial schedules between Philadelphia and Burlington, incorporated the design its inventor later submitted for both his American and French patents (fig. 5–7). Stern crank and paddle propulsion was the key element of the design.

Both Fitch and Rumsey died defeated, convinced that the United States patent system had injured them and was, at least in some measure, responsible for their failures. While their primary difficulties certainly came from other sources, their patents, both American and foreign, contributed no help. More important, the experience of the two men led others to doubt the utility of filing for patents.



SECTIONAL VIEW OF AIR BLAST HULLER GIN

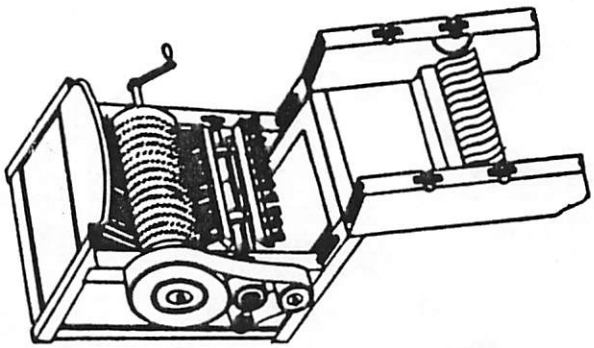


Figure 23b.

Line drawing of Eli Whitney's 1794 patent spike gin, as made by Prof. D. A. Tompkins, 1890. This model was portable.

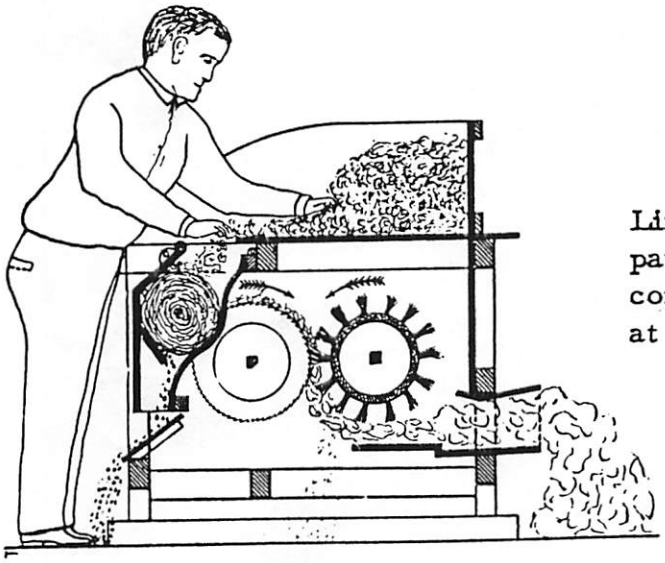


Figure 24.

Line drawings of Hodgen Holmes' 1796 patent saw gin. This working unit, as constructed by Prof. Tompkins is also at Clemson College, S.C.

The plain cotton gin of the present time, for comparison to the foregoing toothed gins, is depicted in Figure 25.

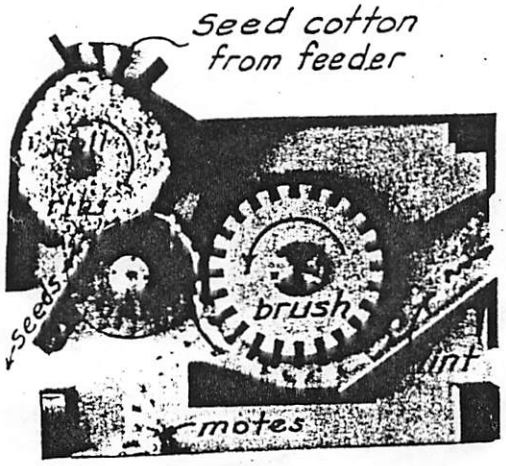



Figure 25.

U.S.D.A. Cotton Ginning Research Laboratories' cross-section of today's plain gin, (as portrayed in the model by Messrs. McWhirter, Martin and Baggette at Stoneville, Miss.).

# APPENDIX

## Document 3.

## East Texas Old Gin, 1874.

By Alfred M. Pendleton and Edward H. Bush
Respectively, Extention Cotton Ginning Specialist, U.S.D.A.,
and Executive Vice-President, Texas Cotton Ginners' Association.

NOTE: This is a partial reprint of articles by Messrs. Pendleton and Bush that appeared in the March 27, 1954 Cotton Gin and Oil Mill Press, and in the ACCO Press of January, 1955.

There is an unusual gin located on the Goodman farm six miles out of Tyler, Texas, on the highway to Van. Equally unusual is the part-owner and caretaker, Mrs. Sallie Goodman Callaway of Tyler, who has protected the gin and kept it almost intact for the last half century.

The entire equipment in this 80-year-old gin consisted of one gin stand with 48 10-inch diameter saws, a wooden two-story screw press, and the necessary transmission equipment -- all powered by mules. The frame building, which housed all the equipment, including the press, is 64 feet long, 34 feet wide and of two-story construction. Except for the loss of the cotton receiving platform and the addition of a new metal roof, the building stands little changed from the time of its construction. Even the 11-inch square timbers, which were cut in the woods nearby and squared with axes, are in good condition. The longest of these timbers is more than 30 feet, and it still serves as a beam to support the second floor.

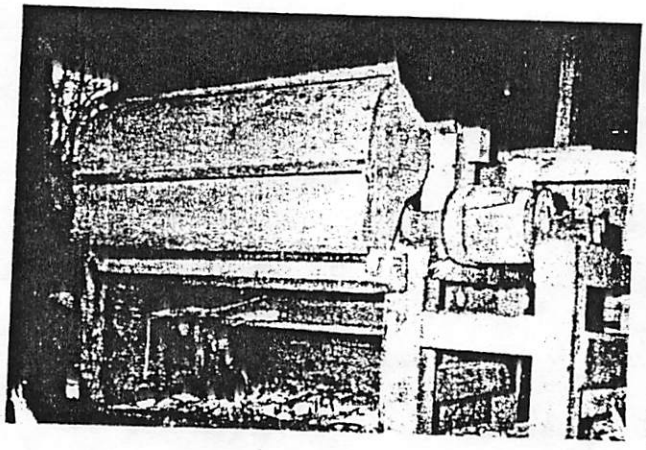


Figure 87.

Close up view of the 48 saw gin stand showing breast in ginning position.

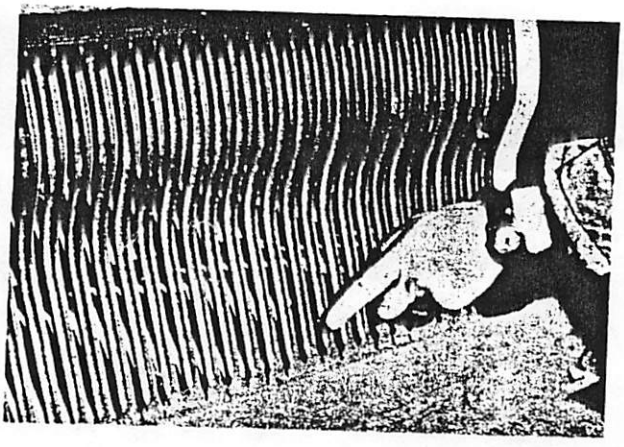


Figure 88.

Rib assembly from the 48 saw gin. The lower section of the rib has shoulder projecting to the left side only.

Although dividing boards or deflectors above the junction between the saws and brush bristles are used to this day, there are only a few modifications of the Carver type moting bar that worked out successfully. One of these was the 1854 Gullett combination of bristle brushes in lieu of flat mote bars, plus a revolving stripper brush on the underside of the saw (Figure 35.).

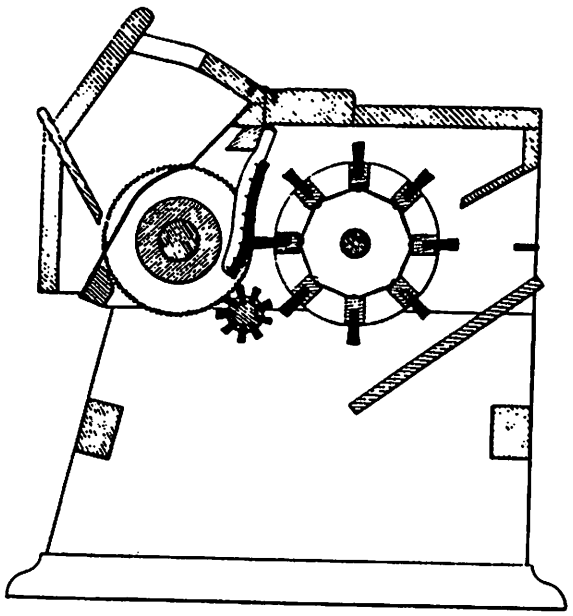
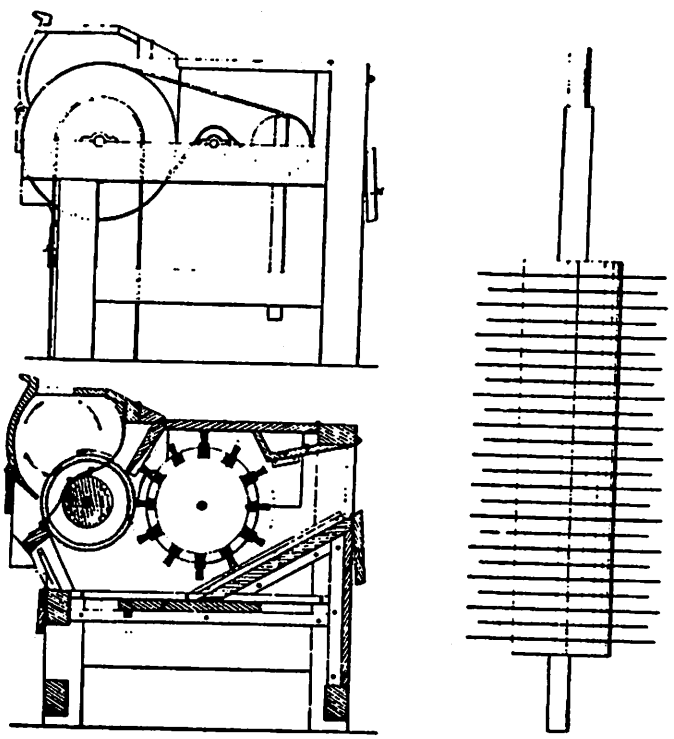


Figure 35.

Benjamin Gullett's invention of stationary and revolving mote bars and lower stripper. 1854.



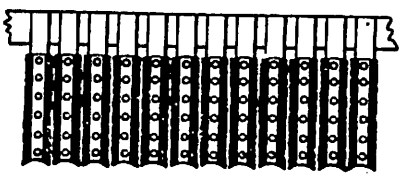


Figure 36.

J. Simpson's improvement in cotton gin stands, having two sizes of saws and a horizontal sliding mote board.