

be swaged before the metal had time to chill. About January 1st, 1859, he came to the conclusion, as the result of experiments with cast iron dies, that this difficulty could be obviated, and that cast steel auger heads could be manufactured by swaging; and he then proceeded to perfect the mechanism, which consisted, in brief, of a die and mould, or a pair of dies, and the appropriate machinery by which the dies were operated. It is not necessary to describe, with accuracy of detail, the successive stages of development through which the perfected machine progressed. It will be sufficient to state the history of the invention very briefly. The cast iron dies which were used at first broke under the force of

the blow of the plunger. Cast steel was then tried. A hole was drilled in a solid block, having enough solid metal to form the three teeth of the die between the places which were drilled out. The teeth were formed by digging out the metal between and around the teeth. In order to drill the hole, the metal must be annealed, and it was thereby made soft. Consequently, the dies wore away under the pressure of the plunger, so that the head of the swaged bit was too large. To remedy this difficulty, a second set of dies were made, in which the bits which had been headed were again swaged, so as to reduce the size of the heads. This seems, however, to have been a temporary expedient. In consequence of the softness of the iron, the upper tooth was apt to bend, and the metal would roll under and fill up the space between the upper and the next lower tooth, so that the edge of the twisted blank could not enter this space, and it was necessary frequently to remake the teeth. To avoid this defect, one tempered detachable tooth was inserted in the die. In 1863, a solid block containing two, and afterwards three, detachable tempered teeth, was inserted in a space in the die which had been mortised out. But the teeth wore unevenly. Finally, after various plans, each tooth was inserted separately in its separate block, so that each tooth and its block could be removed. This improvement was made in 1865. During the same time, the press was also being altered and perfected. The last improvement was made in December, 1865, and the application for a patent was forthwith sent to the patent office. During all this period, the plaintiff was the owner of a factory, and carried on his business of manufacturing hand-made augers. He had a contract to manufacture three hundred bits of different sizes per day, but was not able to furnish that number. During nearly each month from February, 1859, to 1865, in the intervals of his experiments, he headed bits upon the machine, which, when made perfect, were delivered, with the hand-made bits, upon his contract. Prior to November 1st, 1863, a great many were imperfect and were wasted, and nearly all were worked over by hand, or went through the second set of dies. The plaintiff usually operated the machine himself, but some of his workmen, who were sufficiently skilled, occasionally worked on it also. During all this period, the plaintiff was devoting whatever time he could spare to experiments upon his invention. He applied himself diligently to the task of perfecting his machine, as his means and opportunities permitted. He ran the machine as an inventor, but he also tried to get from it what he could for his profit, by using it privately and with intentional and effectual concealment from the public. Its construction was kept secret. It was necessarily used in a room where there was a forge and where there were other workmen, but the public was carefully excluded, and the workmen were warned of the approach of strangers by the ringing of a bell which communicated with another part of the factory. When the machine was not used, it was covered with a cloth. Until 1864, its use was not profitable. In that year the machine produced better results than it had before, and, between November 1st, 1864, and July 10th, 1865, the dies were brought to

such a state of perfection, as to satisfy the plaintiff that the process of forging bits by dies, at one operation, could be advantageously performed, as compared with the process of hand forging.

It is manifest that the use of the dies, and of the machine, in the state in which they were, from time to time prior to December, 1865, was mainly an experimental use, and that the plaintiff used them, as an inventor, for the purpose of perfecting the invention and of testing its value. The use for profit was incidental and subordinate to the experimental use, and the entire use may, with propriety, be considered as experimental. The use was not public use, within the meaning of the statute, that is, a use for profit, as distinguished from a use for experiment and for testing the value of the invention.

When the patent was applied for, the detachable teeth and detachable backs were not mentioned in the specification, and, so far as teeth and dies are concerned, the patent was granted for the invention as it stood prior to November, 1863, before the last improvements were added. It is claimed, that, if the invention, as patented, was in public use by the patentee, or on public sale, with his knowledge and consent, for more than two years before the date of the application, such patented invention had thereby become the property of the public, notwithstanding experiments were, being made during such two years, and subsequent unpatented improvements were added prior to the date of the application. This is true. But the defendant has still failed in establishing that the invention, as patented, in the state in which the dies were prior to November, 1863, had been in public use more than two years prior to December 19th, 1865. The use of the invention, as patented, was experimental, for the purpose of testing its value.

Acts of an inventor, to determine the value, utility or success of his invention, are to be liberally construed, if the acts are not inconsistent with the clear intention to hold the exclusive privilege. "Public use of an invention, unless by the patentee himself, for profit, or by his consent and allowance, will not work a forfeiture of his title, as such forfeiture is not favored, unless it clearly appears that the use was solely for profit, and not with a view of further improvements, or of ascertaining its defects, or for any other purpose of experiment in reducing the invention to practice." *Jones v. Sewall* [Case No. 7,495]; *Pitts v. Hall* [Id. 11,192]; *Agawam Co. v. Jordan*, 7 Wall. [74 U. S.] 583. It.

YesWeScan: The FEDERAL CASES

would be a harsh limitation of the statutory rights of an inventor, which should give to a naked infringer the privilege of using an invention, because the patentee had attempted, in good faith and in secrecy, to incidentally make his experiments of some pecuniary benefit, while he was patiently endeavoring, amid many failures, to remedy the defects of the machine, test its value, and ascertain whether it could be used advantageously, and whether it ever would be of any benefit either to himself or to the public. Courts have not favored this ground of forfeiture, and have required clear evidence to establish the fact that the use was not experimental. In this case, I am satisfied that the evidence is not of that character which has ordinarily been required to prove that an inventor had, by his own acts, forfeited his right to the exclusive ownership of the invention. Let there be a decree for an injunction and an account.

¹ [Reported by Hon. Samuel Blatchford, Circuit Judge; reprinted in 3 Ban. & A. 361; and here republished by permission.]