

# Johann Gutenberg: The Man of the Millennium

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Before the breakthroughs made by Johann Gutenberg in mid-15<sup>th</sup> century Germany, books were a precious commodity, each hand-written by scribes over a long period of time. [Fig. 1—Belgium, Scott #668]

After Gutenberg, however, books quickly produced in multiple copies became commonplace, as the art of printing from moveable metal type spread around the world from its cradle in Mainz, Germany. [Fig. 2—Germany, Scott #723]

The history of the book and Gutenberg's brief yet seminal role in that development involves one main question: **What did Gutenberg invent?**



Fig. 1—Medieval Scholar/Scribe; Belgium 668



Fig. 2—Gutenberg using ink balls to ink a form of type on the bed of a press; Germany 723

“Printing” is not an adequate answer, for the first printed and dated book, the *Diamond Sutra*, had already appeared in 868 C.E. [Fig. 3—Haiti, Scott #915]. Gutenberg *did*, however, invent five things:

First, he adapted the existing concept of a press (probably a wine press) into a press that could be used for printing books and other documents. [Fig. 4—Albania, Scott #2530]

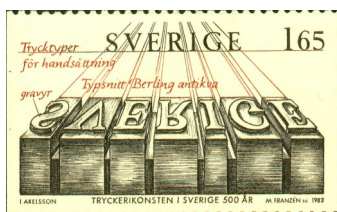


Fig. 5—Letters cast in metal as they would appear in a composing stick; Sweden 1448

Second, using an exercise in precision mechanics, he created a mechanism, the type mold, which allowed the rapid creation of many individual metal letters that (1) were reusable, and that, using a composing stick (2) were set into words, sentences, paragraphs, and pages prior to printing. [Fig. 5—Sweden, Scott #1448]

Third, Gutenberg based his typecasting upon a set of matrices, one matrix per character—upper-case letters (capitals), lower-case letters, ligatures, diacritics, abbreviations, and the like. The creation of each matrix involved several steps, including designing each character, engraving punches, making smoke proofs, and heating the punches to harden them. [Fig. 6—Germany, Scott #2068]



Fig. 6—A specimen sheet of the letters, etc. cast by Gutenberg in preparation for printing his Bible of 42 lines; Germany 2068

Fourth, he perfected a combination of liquid lead, tin, and antimony that would harden almost instantly when cast in the type mold, an oil-based ink that would stick to the metal type, and ink balls with which to apply the ink to the type once it was composed. [Fig. 7—Hungary, Scott #2087]

Fifth, he invented the form by which individual metal type is locked together and laid on the bed of the press to enable printing to occur. [See Fig. 2]

Gutenberg's genius lay in coordinating the capabilities of all these inventions and using them to produce a copy of the Bible that rivaled Bibles then being written by scribes. That multiple copies (in Gutenberg's case, about 180 copies of the Bible) could be produced from one setting of type meant a reduction in time and cost, and a huge revolution in the way in which knowledge spread throughout the world. [Fig. 8—United States, Scott #1014]



Fig. 3—Carved wooden block used to print the *Diamond Sutra* in China in 868 C.E.; Haiti 915



Fig. 4—Artist's rendition of Gutenberg's wooden hand press on which he printed the 42-line Bible; Albania 2530



Fig. 7—Thought to be especially powerful and majestic, a Griffin here holds two ink balls used to ink a form of type prior to printing; Hungary 2087



Fig. 8—Gutenberg showing a page proof from his 42-line Bible to one of his patrons, the Elector of Mainz; United States 1014