



*An early flat bed press. The printer is clamping the paper to the cylinder by hand. Later presses had automatic fingers that gripped the paper as the cylinder turned.*

Inking the type held back the development of rapid printing. Despite improvements, the printing presses of 1800 were little, if any, faster than those that Blaeu had built in 1620. Between each impression the type still had to be inked by hand with leather pads or ink balls.

William Nicholson was the first to hit upon a speedier method of printing. His invention was the cylinder press, so called because of the heavy cylinder which grasps the paper and rolls it over the type. Since the cylinder could press paper against the type much more quickly than the old-fashioned screw, Nicholson's machine was potentially faster—but only faster if some quick method of inking the type were devised. In 1790 he conceived the idea of making a roller to spread the ink over the type, but he could never find a workable material for it. He tried making rollers of layers of cloth covered by pliable sheep pelt like the sheepskin-covered wool ink pads. A roller made this way, however, was too irregular to equal the smooth hand-inked job.

In 1813 a man named Foster (or Forster) watched potters painting their products. Their dabbers were covered with a rubbery substance made of glue and molasses. Foster used the mixture to make better ink balls, but someone else combined Nicholson's and Foster's inventions for speedier printing. In 1814 an historic edition of the *London Times* was printed—the first ever run on a cylinder press. The press used many of Nicholson's ideas in its construction; the ink was spread by wooden rollers covered with a mixture of glue and molasses.

The pace of printing was stepped up, limited only by the speed with which men could fasten sheets of paper to the cylinders. D. Napier, a London machin-