cient number of trials the wheel was taken off and the same men were furnished with oars. The result of repeated trials was a few seconds in favor of the wheel. It is unnecessary to observe that the wheel must have worked to much disadvantage. The proper angle of obliquity was not attended to, besides the wings were made with a flat surface, whereas a certain curve was necessary. And in order to give a due immersion to the wheel, its axis was inclined 30 to 40 degrees below the horizontal line. The machinery, too, was put up in a very coarse manner. One important consideration in favor of these wheels is the facility with which they can be defended from all external injury by placing them in the stern. My foreman promises to have the engines going in the boat in about two weeks from this time." *

Colonel Stevens for six years, ending with 1806, sought to establish steam navigation by the screw propeller, endeavoring to introduce (1) the short four-bladed screw, (2) steam at high pressure, (3) multitubular boilers, (4) quick-moving engines directly connected to propeller shafts, (5) twin screws.

*Francis B. Stevens, grand-nephew of Colonel John Stevens, in the *Stevens Indicator*, April, 1893, said:

"Colonel Stevens considered himself the inventor of the screw propeller. He was mistaken. It was proposed by the mathematician, Daniel Bernouilli, in 1752. It is described by David Bushnell in a letter to Thomas Jefferson, in 1787, giving an account of his submarine boat, in which a screw propeller, worked by hand, was used. The same idea was afterward suggested by Franklin, Watt, Paucton, and others. Prior to 1802 the screw propeller was twice distinctly patented in England: first, by William Lyttleton, in 1794; second, by Edward Shorter, in 1800."

John Bourne, in his "Treatise on the Screw Propeller," London, 1867, mentions a prior patent, that of Joseph Bramah, issued May 9, 1785. His propeller was "a wheel with inclined fans or wings, similar to the fly of a smokejack, or the vertical sails of a windmill. This wheel was to be fixed on the spindle of a rotary engine, and might be wholly under water, where it could be turned round either way, causing a ship to be forced forward or backward, as the inclination of the fans or wings might determine."