Chapter 8

FUNDAMENTAL INVENTIONS—NOBODY'S BABY

A. Introduction and Instances

[324] When we discussed in chapter 6 the numerous classes of inventions and discoveries for which patents are usually not sought, even if legally and economically feasible, we left (¶ 214) for consideration here the case which is the most important, the *fundamental* civil invention, the grand new start, most important intrinsically and because it has no present means of support. Science has its universities, foundations, and Government bureaus; fundamental military inventions like atomic energy and space travel have their Defense expenditures; gadgets and improvements below the patenting level have their commercial motives, for quick even if limited profits; but the fundamental civil invention is nobody's baby, and lacking all help languishes long, far longer than the 17 years of patent protection. Let us first illustrate this by four cases.[332]

[325] *Television* was first embodied in apparatus in 1877, its uses and consequences pretty well foreseen in 1892 and 1912,[333] and Fessenden [334] designed and tried out a wireless system in 1901. But its earliest important use in America was about 1947. In those 70 years many men had labored and spent on it, adding important elements such as the scanning disk, radio operation, broadcasting, and Zworykin's key invention of the iconoscope in 1929, 18 years before the patent rewards could have become important. He had taken his first TV patent in 1923.

[326] The *helicopter*, including the first screw propulsion, was proposed by Leonardo da Vinci about 1500, but might have been in use before then in China, as a flying toy.[335] Long and painful development of the invention was pursued in the 1800's, parallel with the airplane. It got off the ground before the century ended, was experimented with by Edison in 1908, flew usefully on a tether in the first World War, and free in 1922, and in 1930 the aviation authority, Klemin, wrote "The amount of money, ingenuity, and trouble spent on the helicopter without tangible results is extraordinary. It is one of the mysteries of aeronautics as to whether success will ever be attained." [336] However, this most expensive bird flew successfully in Germany in 1938, and the first sizable orders for it were placed in 1943, when the American military had taken it up and when all the essential patents had expired, including the method of control by cyclical readjustment of the rotor blade angles.

[327] *Jet propulsion*, in water or air, is found in nature, was proposed by Bernouilli in 1738, has been experimented with for centuries,

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[335] This "flying top" had coaxial propellers, energized by a bent bow, and was exhibited in Europe in 1784. Other history may be found in D. Francis: *Story of the Helicopter*, 1946, 182 pp.; and S. P. Johnston: Flying Up; *Technol. Rev.* 43: 64ff., Dec. 1940.