the same goal about the same time, some by identical and some by unlike but also feasible methods, such rivalry being typical of the modern world with or without the patent system. (¶ 146). When a patent has been granted to the first-comer, the later comers do not like to pay royalties, nor to be excluded from production; so if they cannot destroy the first man's patent in the courts, or if they shun the great costs of litigation, they try to circumvent his patent by some equivalent invention; and if they can also get a patent on this, so much the better. The rivals not only tend to start work about the same time, as we said, when evolving technology makes the situation ripe for that invention, but also the first one to make his ideas known sets off his rivals. Even a patent can by no means monopolize all of an invention, its idea-elements, e.g., that a particular new function revealed is worth doing and is doable. A patent can protect only a particular combination of ideas; much the same ideas in other combinations are probably open to use.

[180] For every attack there's a defense; so any of the patentees, especially a wealthy corporation with aggressive or defensive policies, may try to take out the rival, equivalent patents itself first, or to buy them up, as we told under the fourth justification, to own possibly a dozen equivalents, yet use only the best one.

[181] Is all this effort to invent around patents, to find equivalents for inventions, a good or a bad thing, one of the evils due to the patent system, or one of its merits, another variant of the first economic justification of patents? Certainly it is both good and bad in different cases; which side preponderates the writer has no means of proving.[219] The fact that a useful rival inventive effort was touched off by an obstructing patent does not prove that the second solution would not have been produced shortly without that. The mere appearance of the new invention, with its novel merits but particular shortcomings, might well have been sufficient stimulus. Three thoughts suggest a preponderance of waste over accomplishment, and a fourth the contrary: (1) In the great inventive laboratories of government and trusts, to which patents means little, constant effort at improvement goes on, usually aimed against some shortcoming seen in present methods, but occasionally to achieve a new effect, or to find uses for a product thought of as too cheap, under-utilized. With such motives constantly instigating research, the additional motive of patent circumvention would be unnecessary, even if often stimulating. (2) It seems logical that the best method would be a little likelier than any of its rivals to be developed first to the patented stage, because being best, it would probably be perceived as such. (3) The writer cannot recall, nor find in his abundant files, a single case of an inherently worth-while invention which was made in order to circumvent a patent, or to bar a rival patent. Carr alleges numerous cases, but his evidence is suspect.[220] Frost, arguing for circumventive inventing, cites instances, but calls only one,

[219] R. R. Nelson attempts mathematical formulas for determining the appropriateness of parallel efforts, depending on the urgency, etc. An example is the five ways which were started for making uranium explosive, of which three were carried through. Uncertainty, Learning, & Economics of Parallel R&D Efforts: *Rev. of Ec. & Stat.* 43:351–64, 1961.

[220] It is based on about 300 questionnaires returned to Los Angeles patent attorneys from firms and individuals they selected, in a project to test the conclusions of the Melman report (N 165). The question "Have you ever attempted to 'design around' patents?" brought 161 yeses, 57%; but the following question, "Has your own item produced in this manner been: not as good as—equal to—superior to—the patented item?" brought 187 answers, 114 of which claimed superiority. (N 100).