the law of nature to a new and useful end." [1412] In addition to refusing to allow patents for natural phenomena and laws of nature, the Court has held that abstract ideas and mathematical formulas may not be patented,[1413] for these are the "basic tools of scientific and technological work" [1414] that should be "free to all men and reserved to none." [1415]

As for the mental processes that traditionally must be evidenced, the Court has held that an invention must display "more ingenuity . . . than the work of a mechanic skilled in the art;" [1416] and, though combination patents have been at times sustained,[1417] the accumulation of old devices is patentable "only when the whole in some way exceeds the sum of its parts." [1418] Though "inventive genius" and slightly varying language have been appearing in judi-

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[1412] Funk Bros. Seed Co. v. Kalo Co., 333 U.S. 127, 130 (1948); Diamond v. Diehr, 450 U.S. 175, 187 (1981) ("[A]n *application* of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.") (emphasis in original). *Cf.* Dow Co. v. Halliburton Co., 324 U.S. 320 (1945); Cuno Corp. v. Automatic Devices Corp., 314 U.S. 84, 89 (1941).

[1413] Gottschalk v. Benson, 409 U.S. 63 (1972); Bilski v. Kappos, 561 U.S. ___, No. 08–964, slip op. (2010); Mayo Collaborative Servs. v. Prometheus Laboratories, Inc., 566 U.S. ___, No. 10–1150, slip op. (2012).

[1414] Gottschalk v. Benson, 409 U.S. 63, 67 (1972).

[1415] Funk Bros. Seed Co. v. Kalo Co., 333 U.S. 127, 130 (1948).

[1416] Sinclair Co. v. Interchemical Corp., 325 U.S. 327, 330 (1945); Marconi Wireless Co. v. United States, 320 U.S. 1 (1943).

[1417] Keystone Mfg. Co. v. Adams, 151 U.S. 139 (1894); Diamond Rubber Co. v. Consol. Tire Co., 220 U.S. 428 (1911).

[1418] A. & P. Tea Co. v. Supermarket Equipment Corp., 340 U.S. 147 (1950). An interesting concurring opinion was filed by Justice Douglas for himself and Justice Black: "It is not enough," says Justice Douglas, "that an article is new and useful. The Constitution never sanctioned the patenting of gadgets. Patents serve a higher end—the advancement of science. An invention need not be as startling as an atomic bomb to be patentable. But it has to be of such quality and distinction that masters of the scientific field in which it falls will recognize it as an advance." Id. at 154–155. He then quotes the following from an opinion of Justice Bradley's given 70 years earlier:

"It was never the object of those laws to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufacturers. Such an indiscriminate creation of exclusive privileges tends rather to obstruct than to stimulate invention. It creates a class of speculative schemers who make it their business to watch the advancing wave of improvement, and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country, without contributing anything to the real advancement of the arts. It embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to lawsuits and vexatious accountings for profits made in good faith. (Atlantic Works v. Brady, 107 U.S. 192, 200 (1882))." Id. at 155.

The opinion concludes: "The attempts through the years to get a broader, looser conception of patents than the Constitution contemplates have been persistent. The Patent Office, like most administrative agencies, has looked with favor on the opportunity which the exercise of discretion affords to expand its own jurisdiction. And so it has placed a host of gadgets under the armour of patents—gadgets that obviously