



## Patent Mill and Paper Mill: Can it Build the Scientific Carrier or Act as an Academic Barrier

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### Abstract

Patents and publications of research papers are crucial elements to judge the quality of researchers. Patent systems are not identical globally. Developing a new idea or a new product does not necessarily end in patenting, it needs patent filling. The 'novelty' in discovery indicates 'novel to the world' is the main criterion all over the world. Similarly, the patenting laws differ from one country to other. Brief discussion has been made in this manuscript to elaborate "Patent mills and Paper mill" that has exposed unethical credit taken by the inventors without any visible contribution towards science. To promote the faculties to next higher grade most of the universities and research organisations are adapting score card system considering easy-to-measure metrics, such as numbers of papers published by a scientist, in the journals, number of patents acquired. These metrics do not necessarily measure the quality of a researcher. Many unscrupulous firms are attracting academicians to adopt unfair means to purchase authorship in papers and ownership in patents. All these ultimately cause harm to the academic carrier of professionals. Patent mills and paper mills are causing mistrust in science.

**Keywords:** Paper; Paper Mills; Patent; Patent Mills; Publication; UGC

### Patent in carrier achievement

From schooling we are familiar with the name of Thomas Edison credited with large number of patents in his life time. At that early age we were unable to judge the gravity of patent in academia; subsequently once we joined in scientific profession, we perceived its significance in shaping the carrier of a researchers. The importance of patents for scientists is too vast but clumsy too. Developing a new idea or a new product does not necessarily end in patenting, it needs patent filling which itself is a delicate path and at times it requires the professional guidance and support from patent attorney or patent lawyer to claim the findings as justifiable

for patenting in court of law. To avoid misconception, we should be clear in mind that the inventor does not get the right to use his/her invention rather it prevents others to use the invention for commercial purpose, unless otherwise permission taken from the inventor to do so. Therefore, the patent has two major aspects one is invention that is permanently recorded in the name of inventor for life time and no one can claim again for this invention, second if the invented product or novel methodology that can lead to new technology is being used for commercial purpose inventor must demand royalty from the commercial firm. In modern world those who are involved in academic and research field all of them have

some intention to add something new may be in the form of product or idea to make the world progressive. Few researchers consider the publication of scientific findings having more significance and another group prefer to develop some new technology and products for patenting, whereas a small group are keeping balance between publications and patenting to prove their existence in science as vibrant and dominant unit. These small dynamic groups are called as science and technology scientists [1]. Invariably those small patent professionals do not prefer to be tied to the bench or any project instead more inclined to remain close to cutting edge science for translational research. We can say these groups having interest not just in science but also in its applications. Patenting is a tricky job that is why in several occasion inventors need to hire the law professional for patent filling to avoid rejection. Suppose one has made some modification in an existing product that has improved its utility and more acceptable to the users yet the patent application draft must be robust in its language and explanation so that the earlier designer should not get an opportunity to counter the client applying for patenting. For example, if we make some change in a water bottle and that is unique not earlier designed by any manufacturer yet during filing of patent application the client should mention it as “a fluid-containing receptacle” so that the patent covers not for water rather for different types of fluids like fruit juice containers and milk cartons also. In many occasions when the patent examiner raises objection in novelty mentioning “client demand is not inventive enough” in that situation the inventor must approach professional help from the attorney to retain patent right. The prime responsibility of attorney is to stand up for his client to defend the objections raised with justifiable law along with additional supportive features to settle the claim in favour of clients. However in several occasion the patents are rejected even though the novelty seems to be genuine but not sufficient to adhere to the frame of rules. From the above discussion it gives an indication that scientists as inventor should learn certain level of patent law beyond their professional subject, not necessarily to pursue law degree [2]. Presently there is an explosion of patent applications from academic institution for which more and more involvement of law professionals is demanding for the protection of new inventions by the institutions. Due to advancement in DNA science a plethora of gene edited products are gradually entering in to the commercial market through the biotech industry for which there is an increasing demand of patent expertise to protect the

patent right. With above introductory discussion in the subsequent part of this manuscript we are interested to take up a controversial issue related to patent and publication that may affect carrier development of researchers.

### Patent mills and Paper mills

In English literature the word “mill” implies a factory or machinery for processing; a manufacturing unit that can produce certain items like cotton, rice, steel, or textiles in large quantity within a limited time. But presently a new terminology such as “Patent mills and Paper mills” have been surfaced out in science magazine that has exposed unethical credit taken by the inventors without any visible contribution towards science. It is well known that for carrier advancement and for promotional avenues academicians engaged in universities need to publish certain number of research papers in reputed journal and few patents to be acquired either as single or joint inventor or else promotion is denied or delayed by the selection committee of respective universities. Without any exception Indian universities and research institutes are also adapting score card system in which specific points for patents and research publication are allocated for qualitative evaluation of researchers. During assessment through carrier advancement scheme faculties must gather a minimum number of points for promotion to next level as per UGC norm. The University Grants Commission (UGC) under the department of the Ministry of Education Government of India was established by an Act of Parliament in 1956, a regulatory body to coordinate, determine, and maintain standards of teaching, examination, and research in university education. Under UGC guidelines research paper published in refereed journals without impact factor is assigned with 5 Points and maximum point is 30 if published in journal having impact factor more than ten [3]. In the score cards more points are given for international patents than local, however it differs from one university to another. Invariably selection committee while selecting a candidate for a tenure position out of a stack of hundreds of applicants, are relatively rigid for considering easy-to-measure metrics, such as numbers of papers published by a scientist, the impact factor of the journal in which it has been published, number of times the paper has been cited. All these metrics do not necessarily measure the quality of a researcher. According to Elisabeth Bik, a microbiologist and scientific integrity consultant “Science is hard, it can take

years to find the correct findings.” In one of the publications, she has mentioned “research notebooks and laboratory basements are filled with negative results, so it does not mean that such negative findings are without value. Therefore, publishing negative results is good for science rather than manipulating data [4]. An excerpt from one of the recently published articles in Science has mentioned that thousands of U.K. “design registrations” sold to Indian academics in past 2 years [5]. Few unrecognised companies have given an opportunity to scientists to purchase authorship in research papers. Simultaneously over the past 2 years, few firms have offered ownership for registered design with the United Kingdom’s Intellectual Property Office for medical equipment and other devices on payment basis to scientists from different countries (including India and Pakistan). Without any involvement in design making all these scientists have received ownership for the design [6].

Reese Richardson and his team from Northwestern University while monitoring social media was able to find advertise for fraudulent academic products for sale, including journal publications, student essays and so-called U.K. design patents, with “inventorship” slots being sold for 2000 to 30,000 Indian rupees (\$23 to \$398). The ads emphasize that a “patent filing” can give researchers a boost in the ranking systems used in India. In their recent publication Richardson has critically analysed the points-based criteria adapted by the UGC for assessing faculty on their academic achievements that includes patents. Research paper published in a peer-reviewed or UGC-listed journal carry 8 points in score card and additional points is allocated for publications in high-impact journals. Similarly, faculty having international patent (patent outside of India) earns 10 points whereas an Indian patent gather 7 points score. As per UGC norm a minimum research score of 120 is required for promotion from associate professor to full professor in the humanities and sciences as mentioned in that preprint version [7]. The author has addressed the strategic modules adapted by fraud companies which is attracting faculties to grab patent inventorship credit being offered for sale as well as offers given for authorship on research paper and even thesis writing. With intense scrutiny Richardson group was able to trace at least eight firms might have some kind of involvement in the sale of thousands of UK registered designs as advertised as “UK design patents. Unlike patent, during design registration application, whether the designs are truly new or innovative one

is unclear yet it matters and consider as academic achievement for the faculty. It has been observed that there are several absurd designs including agricultural machinery to electrical equipment has been sold in this unusual route to the scientist with design ownership [6]. Like Indian universities, Russian universities has also incentivized patents to grab bonus point to academicians in their carrier development. It may be a subject of argument but in recent time an unrealistic requirement for academics and medical doctors to publish research papers in scientific journals has been imposed by the regulatory bodies. Worldwide there is growing pressure on scientists for publication even if there is resource crisis to undertake quality research. Quantum of research paper is the ladder to climb in their professional carrier. Trust in science is must. If there is no trust there is no truth. Exploiting the growing pressure on scientist for publication, there are criminal science publishing gangs formerly known as “paper mills” are fraudulent businesses producing fake scientific papers with false content [8]. Paper mills are providing varieties of services to its client ranging from availability of research data through to ghost written fraudulent or fabricated manuscripts and submission services [9]. Although there is work pressure on scientific community and it will remain throughout but no way an unethical path to be follow to set personal goal in life. Scientific integrity experts have opined that inaccurate data in scientific papers can be due to honest error or intentional falsification with dishonesty. A meta-analysis, results of 18 published surveys, could able to find that 1.9% of researchers have admitted to modification, falsification, or fabrication of data [10]. Besides data fabrication it has been observed that there is prevalence of inappropriate image duplication in biomedical research publications. While screening the images from a total of 20,621 papers published in 40 scientific journals from 1995 to 2014, overall, 3.8% of published papers having problematic figures suggestive of deliberate manipulation [11]. According to Nicholas Wise, a researcher at the University of Cambridge who is also tracking the scientific fraud in fake research paper publication has mentioned that paper mills are cash rich organisation bribing editors and recruiting their own agents on editorial boards to ensure publication of their manuscripts. An investigation by Science and Retraction Watch, in collaboration with Nicholas identified more than 30 editors of reputable journals being involved in paper mills activities. To curb this large-scale fraudulent activity several publishers had already sacked nearly 300 editors for manipulative behaviour [12].

In one of the E-conversation with Clean Technologies and Environmental Policy Journal (Springer) Raghunath Mashelkar former Director General of Council of Scientific and Industrial Research, India said that ‘excellence’ and ‘relevance’ must go together in science. In that interview Mashelkar categorically narrated that when he took over the charge of Director National Chemical Laboratory, Pune he was frank enough to declared his idea that as a Director of the institute he is no more prefer to implement “publish or perish”, rather he introduced the new driver as “patent, publish and prosper” [13]. Now the mindset of the scientific community should be to work with honesty and integrity without any data deformity. So, one should remain away from patent mill and paper mill attraction as it may cause carrier destruction. Good time is prevailing so one should publish and flourish.

## Bibliography

1. Chang Y W., *et al.* “Do extraordinary science and technology scientists balance their publishing and patenting activities?” *PLoS One* 16.11(2021):e0259453.
2. Pain E. “Careers for Scientists in the Patenting World” (2011). <https://www.science.org/content/article/careers-scientists-patenting-world>
3. UGC Regulations on Minimum Qualification for appointment of Teachers and Other Academic Staff in Universities and Colleges and Measures for the Maintenance of Standards in Higher Education 2018. The gazette of India Extraordinary Part-III section IV. No. 271. 18th July 2018. New Delhi, India (2018).
4. Bik EM. “Publishing negative results is good for science”. *Access Microbiology* 6.4(2024):000792.
5. O’Grady C. “Patent mills’ offer intellectual property for sale”. *Science* 387.6737 (2025): 918.
6. Richardson R., *et al.* “Exploitation of intellectual property systems for the manipulation of academic reputations. Zenodo”. *International Journal of Educational Integrity* (2025).
7. O’Grady C. “Patent mills’ sell scientists inventorship of bizarre medical devices” (2025). [www.science.org/content/article/patent-mills-sell-scientists-inventorship-bizarre-medical-devices](https://www.science.org/content/article/patent-mills-sell-scientists-inventorship-bizarre-medical-devices) ( Accessed 5th March 2025)
8. Sabel BA and Seifert R. “How criminal science publishing gangs damage the genesis of knowledge and technology-a call to action to restore trust”. *Naunyn Schmiedeberg’s Archives of Pharmacology* 394.11 (2021): 2147-2151.
9. Byrne J A and Christopher J. “Digital magic, or the dark arts of the 21st century-how can journals and peer reviewers detect manuscripts and publications from paper mills?” *FEBS Letter* 594.4 (2020): 583-589.
10. Fanelli D. “How many scientists fabricate and falsify research? A systematic review and meta-analysis of survey data”. *PLoS One* 4 (2009): e5738.
11. Bik E M., *et al.* “The Prevalence of Inappropriate Image Duplication in Biomedical Research Publications”. *mBio* 7.3 (2016): e00809-16.
12. Joelsing F. “Paper trail”. *Science* 383.6680 (2024): 252-255.
13. Sikdar S. “An E-Conversation with Dr. Raghunath Mashelkar”. *Clean Technologies and Environmental Policy* 19 (2017): 3-8.