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# THE PATENT GALLERY

## HOW MUSEUMS CAN ILLUMINATE THEIR INTELLECTUAL PROPERTY

BY VID MOHAN-RAM

Every morning, tens of thousands of museums across the country open their doors to admiring and appreciative men, women, and children ready to encounter new experiences and relive old ones. Exhibits, roving exhibitions, and permanent collections continually impress upon these waves of museum-goers the skill, genius, and virtuosity of artists and artisans, of communities and history, and the progress of museums as archivists and educators. Yet behind the exhibit galleries, largely hidden from view, is another world, modern and forward-looking, in which innovators in chambers develop their museum's technologies. This article is meant to highlight that work and describe certain achievements museums have

made in innovating and patenting as well as identify new laws and strategic decisions that every museum should consider when hoping to rely on patent law to protect and disseminate its intellectual property.

The "traditional" outlets of intellectual property are ordinarily thought to be universities, academia, various forms

of industry, and state and federal governments. But museums may represent an untraditional and untapped source of innovation waiting to be harnessed under the principles of patent law. For instance, of the thousands of museums in the United States with "museum" in their name, only 38 patents have ever issued to a patent owner (the assignee)

that has "museum" in its name. Of course, museums such as The Smithsonian Institution, Freer and Sackler Galleries, science centers, and various geology and indigenous artifact collections, and so forth, wouldn't show up in a "museum"-based patent search, but it is interesting to learn from this limited search what kinds of technologies and innovations museums are seeking to patent and, indeed, have patented. Who could guess that caviar detection kits, remote optical markers, automated collection boxes, and spaceship bungee cords are all museum inventions awarded US patents by the United States Patent and Trademark Office?

The DuPage Children's Museum in Naperville, Illinois, for instance, invented an airflow device to blow dollar-bill donations through tubes into a collection box and had this patented a couple of years ago in May 2012 (United States Patent No. 8,177,120). Remarkably, given the Patent Office's current processing backlog is somewhere around 600,000 unexamined applications, and that traditional pendency time toward allowance is near 30 months, DuPage's patent was issued just over one year after it was filed. The business reason underlying this imaginative apparatus is to address inflation. DuPage states in their patent that "With ever-increasing operating costs, there is a need among many public establishments to further increase donations. As inflationary pressures cause coins to become increasingly less valuable, there is a need to encourage potential donors to donate the larger denominations available in paper currency instead of coins."

The American Museum of Natural History in New York had once patented in 1998 a genetic method for detecting 27 species of sturgeon to give dealers something more than smell and texture to identify incoming shipments of roe (United States Patent No. 5,786,144). The patented method used species-specific diagnostic primers in a polymerase chain reaction to amplify mitochondrial DNA from a sample of caviar. What is interesting is that this patent was allowed to expire a mere four years after it was patented. The patent died in August 2002 due to nonpayment of the first maintenance fee (patent maintenance fees need to be paid at the 4th, 8th, and 12th year of a patent's term to keep it enforceable and alive for the entire term). One wonders whether the patented method could have been licensed by the museum to ports and caviar shippers, and sturgeon conservationists, as well as to counter misleading fake products, under lucrative licensing terms along with the sale of DNA diagnostic kits.

Last New Year's Eve, the Bloomfield Science Museum Jerusalem in Israel was awarded a US patent (No. 8,617,436) on a new photosensitive liquid useful for optically marking objects. This one also got patented relatively quickly: the application was filed in May 2012, and the patent was awarded December 2013. The breakthrough here according to Bloomfield is a "safe, non-flammable alternative to harmful or toxic organic solvents as a medium for the photochromic material that maintains its photochromic effect." Apparently, experts in this field of research "previously thought that the photochromic material required to be dissolved in an organic solvent, because directly dissolving the photochromic material in a non-organic solvent medium was not possible."

The Smithsonian Institution in Washington, DC, received its first US patent (No. 4,097,010) on a novel system for conducting space experiments in June 1978. Their patent offered astronauts "new opportunities to explore the upper atmosphere on a continuous basis" using a tether tied to spacecrafts in order to address needs unknown before the Space Shuttle. The related social commentary embedded in their application when they filed it is historical in and of itself: "The use of spacecraft to perform a variety of different functions for the benefit of mankind has reached the point of practical application" and

With the advent of the Space Shuttle, a new dimension is available in spacecraft design, performance and utilization. The Shuttle, with multiple flight capability offers, for the first time, recovery of experiments for repair and further use. Of equal importance is the ability to readily change orbits and

actively use on board thrusters to maintain marginal orbits that would otherwise decay.

Companies related to the museum industry but not museums themselves are also patenting things. For instance, the Museum Quality Shipping company out of Nevada received a patent in March 2010, entitled Protective Containment of Valued Articles (US Patent No. 7,686,169). It is effectively a packing box but with an inner frame and casing: “a construction and method for isolation of a packed article from deleterious shocks and impacts during transportation and storage of the article, and does so with increased ease, economy and simplicity.”

It is also interesting to follow who has filed new patent applications and on what technologies. The Virginia Museum of Natural History Foundation, for instance, has worked with UT-Batelle, LLC and the University of Tennessee Research Foundation for a number of years on long-term carbon sequestration inventions. Their latest patent application (Serial No. 14/168272) just published in May 2014. The Natural History Museum in London had filed a patent application in April 2012 (Serial No. 13/458,097) on nanoparticles containing isotopically enriched copper or zinc oxides, but the museum never timely responded to a particular Patent Office request, and that application therefore went abandoned. The National Museum of Marine Biology & Aquarium in Taiwan in collaboration with the National Sun Yat-Sen University recently received word of the allowance of their US patent application (Serial No. 13/048195) on pharmaceutical uses of novel compounds isolated from soft coral useful for treating inflammation. These are some of the applications that have been filed by “museum”-named entities in the past few years.

And in addition to filing their own patent applications, at least one museum is highlighting innovations produced by others. Boston’s Museum of Science has an initiative to help bridge the gap between a museum’s traditional objectives, commerce, and raising awareness: for the past three years, the museum has partnered with the Boston Patent Law Association to create “Invented Here!”—an initiative that recognizes and rewards New England’s “newest and most innovative technologies.” Recent awardees include inventors of digital pulse recognition systems, real-time imaging, and bone-stabilizing materials. This museum has cleverly positioned itself as a facilitator of innovation and patent law.

As can be seen by these examples, there are significant strategic factors and decisions that need to be considered and made before a museum invests time, effort, and personnel resources into any kind of patenting initiative. For instance, some granted patents are left to die, whereas some patent applications go abandoned early on during examination. In some cases, patent owners learn after the fact that their patent isn’t valid, or they have no budget to continue the maintenance fees or examination costs, or there is, at the end of the day, no business reason to own or enforce such a patent. Such criteria however—validity, budget, and business reasons—should be fundamental factors to be weighed at the beginning of the process. Every time museum leadership learns of a potentially valuable invention created by their employees, there needs to be a procedure (if there isn’t one already) to routinely document, inspect, and timely decide what action, if any, needs to be taken.

In this regard, the need to make strategic decisions, however, goes beyond individual business reasons and departmental budgets. There will be conflicts and tension if and when nonprofits and museums seek to monetize or derive value and potential income from patent assets. In consciously creating a patent-savvy awareness, a museum should identify whether financial gain is a prime motive or unintended bonus of patenting. Can the patent, if one is ever issued, be marketed

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to other museums or to other industries? Are there general accounting consequences in booking (or not booking) intangible assets, or do unrelated business income tax issues loom? Alternatively, are entrepreneurs in the museum space to be encouraged and, if they are, to what purpose? To generate goodwill or money or both? And while museums are known to litigate over copyright infringement and trademark infringement, it is practically unheard of for a museum to sue another entity for patent infringement. Thus, a museum needs to decide up front whether it will enforce its patent rights. Of course, there needs to be a budget to deal with patent filings, fees, and patent attorney costs, all of which add up.

The patent laws changed these past few years ushering in a new era where (generally speaking) the United States is a “first-to-file” patent country rather than a “first-to-invent” patent country. To be unaware of such essential changes to this aspect of intellectual property law could be detrimental to a museum’s operations and competitive advantage. Now, under The Leahy-Smith America Invents Act, an application’s filing date—not the date the new machine or process was invented—marks a critical moment in time under today’s new patent laws. Again, generally speaking, whoever first files a patent application with the United States Patent and Trademark Office now officially “wins” the priority date of invention. It is therefore necessary for museums to strategically and routinely evaluate their research activities and be able to identify when

a technology or process is sufficiently advanced that it may be beneficial to file at least a “provisional” patent application to secure a priority filing date. Accordingly, routine audits of the museum’s intellectual property should be updated to include an assessment of invention disclosures and patentability to determine whether a statutorily meaningful (meaning *not* barebones) provisional application should be filed quickly to get a Patent Office timestamp, at the peril of waiting and having somebody else file their application first on a similar or same invention. If your museum, or your client’s museum, does not have an invention disclosure plan or process, then work with in-house lawyers or outside patent attorneys, or with your client, to create one as soon as possible.

Museum planners and leadership and human resources need to consider whether innovator employees might find themselves constrained by cautious museum leadership and mission statements. Also, with respect to employees, The America Invents Act also provided various changes to intellectual property assignment procedures, identification of applicant versus inventor, oaths and declarations, and steps the museum-employer can do as a “juristic entity” that it couldn’t do before. A most critical issue that needs to be a priority for museum leadership and HR is to reread its employment contracts, employee assignment agreements, or confidentiality or noncompete agreements, and make sure there is a present assignment (not a future promise) by the employee to assign his or her IP rights to the

museum as of the date he or she signs the contract or agreement.

Outside patent counsel can help create and implement such procedures and can help orchestrate an initial audit to determine what research activities may give rise to innovations that should be protected and used to generate value (value being goodwill as well as monetary), as well as advise on the intricacies of employment law under the America Invents Act.

Routine IP and patent audits in conjunction with controlled expectations and a clear understanding of the role patents play within any museum environment, in light of these shifting pressures and “creative-driven commerce and exchange,” can help drive innovation and generate recognition and goodwill. Patent assets can potentially be marketed from museum-to-museum; museum-to-other-markets; or museum-to-academia, for instance. Museums could also cross-license each other, thereby sharing technologies between museums on mutually favorable terms. Alternatively, a museum could just sell the patented product as new merchandise or tool (e.g., caviar detection kits, space shuttle tethers, or photosensitive liquids). Or museums can sell their unused portfolios, auction them off, use a broker service to identify buyers, or donate them to the public.

And with respect to the public, recall that the whole purpose of the patent system is to reward those who disclose their innovative ideas to the public. In exchange for telling the public and your peers how to make, use, and sell an invention, the federal government awards the patent owner 20 years’ exclusivity (from the time the application was filed). That is, the patent owner can stop others from making, using, and selling his or her invention during the life of the patent, but they don’t necessarily have to. Accordingly, the patent literature is as meaningful if not more so than scientific publications: it is a wealth of knowledge intended to be shared with the public so that others may experiment and modify upon the invention and create new improvements, as well as drive commerce.

In that light, AAM’s facts page notes that museums directly contribute \$21 billion to the US economy each year, and that 3.2 percent of the nation’s entire economy, or \$502 billion, lies in the arts and cultural production. Patent assets are there for the taking. Their exploitation can lead to financial gain or generation of goodwill and could further enhance the commercial reality of museum business. But if nonprofits are under-appreciated sources of innovation, then any attempt to comprehensively appraise their intellectual property rights will be incomplete if patentable subject matter is overlooked. Indeed, knowing there is little to patent is as strategically important to know as what can. It is this “patent” aspect of intellectual property audits and assessments that nonprofit organizations, including museums, may want to better assess as a routine inquiry. If nothing else, find some way to further tout a museum’s own discoveries: your permanent collection can only be enriched by uncovering the patents and innovations that inspire your peers and your patrons. ♦