Have It All: Trade Secrets, Patent Rights, Lower Costs, More Flexibility, and Longer Protection

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Lead (EN)

This article addresses innovators who—because patenting is expensive and because they are unwilling to forfeit trade secret protection—would ordinarily default to the fragile but less costly path of trade secrecy. It explains that there are little-known, practical strategies that avoid the binary choice between "file a patent" and "maintain a trade secret": strategies that preserve trade secret status while keeping significant patent options alive. Nothing here is meant to displace standard filing approaches for innovations not suitable for trade secret protection. And, as always, these materials and any related comments are not legal advice; do not rely on them without a personal consultation with a qualified patent attorney experienced in these techniques.

Lead (DE)

Dieser Beitrag richtet sich an Innovatorinnen und Innovatoren, die – weil Patentanmeldungen kostspielig sind und der Verlust von Geschäftsgeheimnissen vermieden werden soll – typischerweise den fragilen, aber kostengünstigeren Weg des Geheimnisschutzes wählen. Er zeigt praxistaugliche Strategien, die die binäre Wahl zwischen 'Patent anmelden' und 'Geheimnis wahren' aufheben: Strategien, die den Geheimnisschutz erhalten und zugleich wesentliche Patentoptionen offen halten. Nichts hier soll die üblichen Anmeldungsansätze für Innovationen ersetzen, die sich nicht für den Schutz als Geschäftsgeheimnis eignen. Diese Ausführungen ersetzen keine Rechtsberatung; holen Sie bei Bedarf individuellen Rat ein.

Lead (FR)

Cet article s'adresse aux innovateurs qui, en raison du coût élevé des brevets et se refusant à renoncer à la protection des secrets commerciaux, opteraient généralement pour la voie fragile, mais moins coûteuse du secret commercial. Il existe des stratégies pratiques peu connues qui permettent d'éviter le choix binaire entre « déposer un brevet » et « conserver un secret commercial », à savoir des stratégies qui préservent le statut de secret commercial, tout en conservant des options de brevet importantes. L'objectif n'est pas de remplacer les approches habituelles de dépôt pour les innovations qui ne se prêtent pas à la protection par le secret commercial. Comme toujours, ce document et tous les

commentaires connexes ne constituent pas des conseils juridiques et ne peuvent être considérés comme source fiable sans avoir consulté personnellement un avocat spécialisé en brevets ayant l'expérience de ces techniques.

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Summary (EN)

This article explains how to combine U.S. non-publication ('Submarine') filings, provisional 'mini-Sub' cycles, and late-filed divisional design ('UFO') applications to preserve trade secrets, defer international costs, and extend enforceable design protection. It contrasts these U.S.-only levers with 18-month publication regimes and outlines practical contracting, management, and case-study outcomes.

Zusammenfassung (DE)

Der Beitrag zeigt, wie sich die US-Nichtveröffentlichung ("Submarine") mit wiederholten provisorischen Anmeldungen ("mini-Sub") und spät eingereichten Teil-Designanmeldungen ("UFO") kombinieren lässt, um Geschäftsgeheimnisse zu bewahren, internationale Kosten aufzuschieben und durchsetzbaren Designschutz zu verlängern. Demgegenüber stehen ausländische 18-Monats-Publikationsregime; zudem werden vertragliche, organisatorische und praktische Aspekte (inkl. Fallstudien) dargestellt.

Résumé (FR)

Cet article explique comment combiner les dépôts américains non publiés (« Submarine ») , les cycles provisoires « mini-Sub » et les demandes divisionnaires déposées tardivement (« UFO ») afin de préserver les secrets commerciaux, de différer les coûts internationaux et de prolonger la protection exécutoire des dessins et modèles. Il compare ces leviers propres aux États-Unis avec les régimes de publication de 18 mois et présente les résultats pratiques en matière de contrats, de gestion et d'études de cas.

I. First Point: Depending on Residency, You May be Able to File Your First Patent Application Wherever You Wish (e.g., The Swiss are free while Americans must file in the USA first)

A. First Principle: As a Swiss Resident, You May File Your First Patent Application Wherever You Wish

Switzerland generally permits its residents to file their first patent application in any forum they choose (for example, the EPO, WIPO/PCT, or a non-Swiss national office), without a domestic "first-filing" requirement—subject, as everywhere, to national-security or export-control exceptions.[1]

By contrast, Americans, French, and Chinese resident-inventors whose inventions were made in their home country are typically constrained by national-security regimes that require a foreign-filing license or confidentiality review before first filing abroad.[2] Still, a procedure exists in each of these jurisdictions to permit foreign first filing—so, for essentially every innovator not working with defense-sensitive technology, practical

avenues remain to file first in the country or region of choice (WIPO, International applications and national security considerations).

This implies that innovators may choose to file where a jurisdiction offers the greatest commercial significance or a unique strategic advantage, which, in appropriate circumstances, may not be their home country.

A comparative look at 2024 gross domestic product across the United States, the European Union, and China underscores why first-filing outside the home forum may be rational: the United States, the European Union, and China are the world's three largest economic blocs, led by the United States in nominal GDP for 2024, followed by China; the EU as a bloc also constitutes a massive market.[3] This macroeconomic backdrop frames the strategic question: in which market does a first filing deliver the most leverage?

B. "The U.S. Is Important

i). Cost-effectiveness per capita

Apart from China, the United States is often among the least expensive major jurisdictions on a per-capita basis in which to obtain coverage.[4] The structural reason is straightforward: one U.S. patent confers nationwide rights across a single, very large consumer market, whereas protecting an equivalent market footprint in Europe generally involves EPO prosecution plus multiple national validations and country-by-country maintenance, or use of the Unitary Patent where available.[5]. EPO fees and national annuities add up over time (with periodic increases), whereas U.S. maintenance fees are due only three times—at 3.5, 7.5, and 11.5 years after grant.[6]

ii). Legal system predictability and litigation economics

The United States offers a comparatively homogeneous, developed federal system for patent enforcement—including centralized appellate review by the Federal Circuit—which can reduce forum variability. U.S. law firms also routinely offer contingent fee or hybrid arrangements in appropriate cases, which can lower barriers to enforcement for patentees[7]

By comparison, Europe features multiple languages, heterogeneous national markets, and (during the UPC transitional period) parallel jurisdiction between national courts and the Unified Patent Court—with an opt-out still available for classic EPs. Firms in Europe do not offer contingent fee arrangements. The United States has one federal court system and no "opt-out" from federal jurisdiction for U.S. patents.[8]. Consequently—relative to Europe—a bigger, more accessible "pot of gold" awaits the winner in the contest for the U.S., and thereby the world, market.[9]

Conclusion: The U.S. Is a Critical Market for Most Products and Services Therefore, if a client—because of budget constraints or to exploit specific legal levers—

must choose a single patent to anchor its portfolio, many choose a U.S. patent. This is partly because a single U.S. patent is often the most valuable stand-alone right:

Given the size and unity of the U.S. market, the nationwide effect of a single patent grant, and the practicalities of enforcement and licensing in the United States, U.S. patent rights are frequently the most flexible and powerful tools for monetizing an invention, especially where a prospective licensee or likely infringer is U.S.-based.[10]

In short, one must enter the U.S. market eventually—or renounce any prospect of global market leadership. Because the U.S. is a critical market, it makes business sense to file in the United States at some point—including, where appropriate, as a first filing to capture strategic advantages discussed in subsequent parts of this presentation[11]

II. Unique Strategic Reasons to Consider Filing First in the United States

The United States offers distinct strategic advantages as a first-filing jurisdiction. A first filing in the United States can confer strategic benefits unavailable elsewhere—particularly for innovators who wish to protect both trade secrets and patent rights while deferring large, deadline-driven costs.

A. The U.S. One-Year Grace Period

Because U.S. patent law affords a one-year grace period[12] for disclosures made by the inventor, filing in the United States may be the only remaining option if self-disclosure has already compromised the ability to patent in Europe, where grace periods are far more restrictive.[13] Thus, even when an EPO filing is no longer viable, a U.S. filing may still remain possible.[14]

Moreover, U.S. law provides no grace period for secret commercial activity that predates the earliest priority date—including offers for sale made under NDAs. As confirmed in Helsinn Healthcare S.A. v. Teva Pharmaceutical USA, Inc., confidential sales may trigger the on-sale bar.[15]

B. Filing First in the United States to Preserve Trade Secret Rights Through Non-Publication

United States law uniquely allows an applicant to prevent publication of a U.S. patent application when two conditions are satisfied: (1) a non-publication request is filed at the time of the U.S. filing, and (2) the applicant certifies that the invention "has not been and will not be the subject of an application filed in another country" that requires 18-month publication.[16]

If these conditions are met, the USPTO must hold the application in confidence and will not publish it at 18 months. This enables the applicant to maintain trade secret protection indefinitely while also preserving the right to obtain a U.S. patent.[17] This

strategic, non-published U.S. regular application—what you call a "new" U.S. Submarine Application (as opposed to the old Lemelson-style Submarines – see Section XIV below)[18]—creates a deferral mechanism unavailable in Europe, China or the rest of the world.[19]

By contrast, if the innovator files first in any jurisdiction with mandatory 18-month publication (e.g., the EPO, France, the U.K., Italy, China, or WIPO), the applicant immediately and permanently loses the ability to pursue a valid U.S. Submarine application, even if the foreign application is withdrawn before publication. Because the eventual publication destroys trade secrecy, this forecloses a powerful cost-management and secrecy-preservation strategy.[20]

C. Europe and China Do Not Provide an Equivalent Non-Publication Option

Neither the European Patent Convention nor the China National Intellectual Property Administration offers any mechanism comparable to 37 C.F.R. § 1.213.[21] In both systems, applications are published at 18 months as a matter of course, meaning a first filing in those jurisdictions necessarily triggers publication, thereby extinguishing the ability to maintain trade secret rights past that point.

D. Strategic Implications for Startups, Knowhow-rich Corporations, and Resource-Constrained Innovators

For startups, who in today's uncertain world are best advised to "hope for the best and plan for the worst", a first filing in the United States is almost always the prudent choice when the technology is amenable to trade secret protection. Filing first in the U.S. preserves trade secret status, reserves patent rights, allows deferral of foreign filings and their associated costs, and positions the company to make better-informed decisions once funding, market validation, and competitive intelligence mature.[22]

E. Preserving All Filing Options While Controlling Costs

Because foreign filings and translations generate "deadline-driven cost explosions," filing first in the United States gives innovators a critical buffer against budget volatility. For technologies such as manufacturing processes or SaaS systems—both of which may be kept confidential indefinitely—avoiding a mandatory 18-month publication prevents the creation of "monster" prior art (the publication of one's own patent application) that would otherwise obliterate trade secret rights.[23]

Thus, U.S. first filing is not merely a legal tactic; it is a financial risk-management strategy that maximizes long-term optionality.

F. Even in Secrecy, You Can Still Prove Your Rights to Stakeholders

A secret U.S. application does not leave the innovator empty-handed in due diligence or investment negotiations. Applicants retain an official U.S. filing receipt, and the ability to order a sealed, certified copy of the application as filed and, eventually, a notice of allowance. These documents are fully adequate to demonstrate priority and ownership to investors, acquirers, or partners—provided disclosures occur under NDA to avoid destroying trade secret status.[24] Notably, U.S. law does not require that an applicant keep the invention secret to maintain a non-publication request; secrecy is only necessary to preserve trade secret rights, not to maintain the application's unpublished status.[25]

III. Framing the Landscape of IP Protection Strategies

In order to appreciate the strategic advantages available under U.S. law, it is useful to lay out the traditional intellectual-property protection paths and contrast them with the new hybrid strategies uniquely available in the United States. Historically, innovators have understood only three principal strategies for protecting their technology:

1. Filing for patent protection, thereby pursuing exclusive rights but necessarily triggering publication at 18 months, which destroys trade secret status;

2. Maintaining trade secret protection, thereby avoiding publication and cost escalations but forfeiting the ability to obtain patent rights, particularly where commercial embodiments reveal the underlying technology; and

3. Employing a "mini-Sub" strategy, namely, successive refiling of U.S. provisional applications to preserve trade secret status, claim "patent pending" for marketing purposes, and postpone cost-intensive deadlines—while retaining the ability to convert to a regular U.S. or international application within the allowable priority window.

These three strategies, however, represent only the starting point. Under U.S. law, there exist three additional hybrid mechanisms, unavailable elsewhere, that dramatically expand an innovator's ability to sequence patent filings, defer costs, and preserve secrecy.

A. The U.S. Submarine Patent Strategy

A regular, non-published U.S. application—filed with a non-publication request—may remain secret and pending for years until the applicant elects to permit issuance.[26] Because the application avoids the mandatory publication regimes of Europe, China, and WIPO, it allows the innovator to maintain trade secret protection while preserving U.S. patent rights of early priority. This strategy enables the applicant to delay cost explosions, litigation risks, and irreversible disclosure events until commercially optimal.

B. The “UFO” Design Filing Strategy (Unidentifiable Filed Ornamental Design)

If the initial U.S. utility application contains drawings that show a complete set of views of at least one ornamental design of the invention (including physical products or GUIs), the applicant may file U.S. divisional design applications at any time while the utility case remains pending.[27] Because U.S. design patent term is measured from grant rather than filing, this tactic can yield design protection extending well beyond the typical 20-year limit associated with utility patents.[28] The result is a strategically timed, surprise form of design protection that is virtually unknown outside the United States.[29]

C. A Combined Submarine + UFO Design Strategy

By integrating design figures within a non-published utility application, the innovator can simultaneously (1) preserve secrecy through the Submarine application and (2) later file divisional designs that issue into long-lived, enforceable design patents. This hybrid method leverages the secrecy advantages of the Submarine strategy and the extended-term advantages of late-filed design divisionals.

Consequently, where traditional doctrine taught that innovators must choose between trade secret protection and patent protection—each mutually exclusive of the other—the availability of the Submarine, UFO, and combined strategies fundamentally alters that calculus. Only U.S. law permits these hybrid approaches, allowing innovators to (1) preserve secrecy far longer than any foreign system permits, (2) reserve patent rights without triggering premature publication, (3) strategically time the entry into foreign systems when resources and commercial circumstances justify, and (4) extend enforceable design protection beyond the conventional 20-year framework.[30]

In short, U.S. law offers a unique toolkit unavailable elsewhere, transforming the landscape of IP decision-making and enabling innovators—particularly startups and knowhow-rich organizations—to navigate risk, cost, and disclosure with far greater precision.

IV. The Typical Patent Strategy Timeline: A System of Ever-Increasing, Deadline-Driven Cost Explosions

The conventional global patent-filing pathway exposes innovators to a series of rigid, non-negotiable deadlines that trigger escalating costs—costs that typically arrive long before the applicant has meaningful information about market traction, investment prospects, competitive threats, or technical viability.

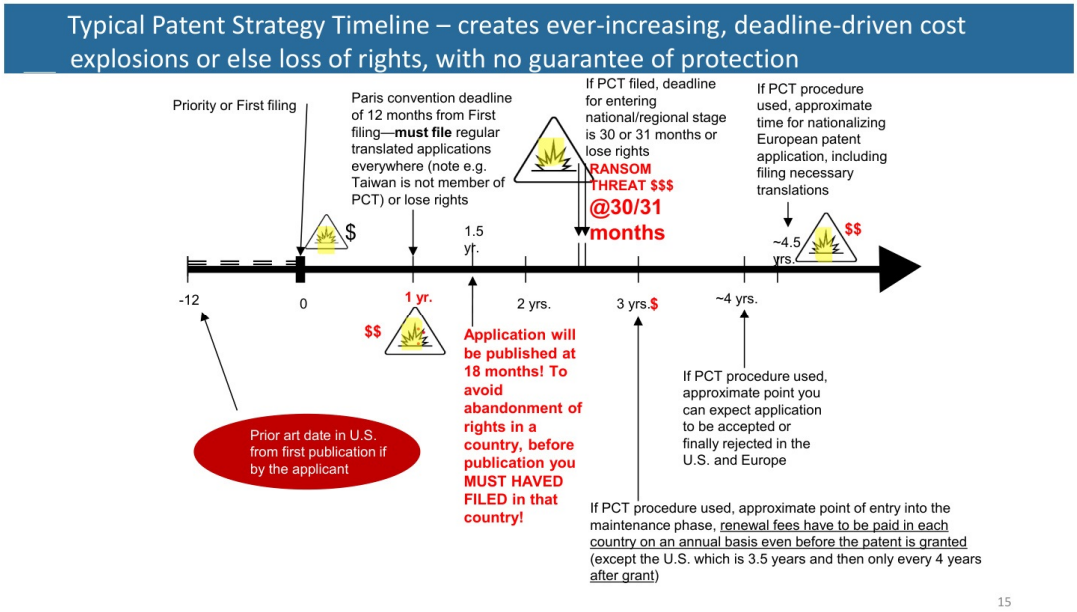


Fig. 1: traditional patent filing strategy

This traditional path unfolds through the following sequence:

A. Applicant's Publications are the Worst Prior Art:

Once an inventor makes a public disclosure—whether deliberate or inadvertent—the publication becomes prior art against the inventor's later filings. Under U.S. law, applicant-originated disclosures may still receive limited grace-period treatment, but elsewhere (notably Europe) such disclosures often terminate patentability entirely.[31] This creates immediate urgency to file promptly and globally before any publication.

B. The Paris Convention's 12-Month Deadline

Within twelve months of the first filing, the applicant must file all corresponding regular national applications (for example, in Taiwan, which is not a PCT member) or, if publication has already taken place, irrevocably lose his right to claim priority. This includes the substantial cost of preparing formal patent specifications, drawings, claims, and translations as required.[32]

C. If a PCT Application Is Filed: The 30- or 31-Month National/Regional Phase Deadline

The Patent Cooperation Treaty gives applicants a temporary reprieve, allowing deferral until roughly month 30 or 31. At that point, the applicant must again incur substantial filing, translation, and local-counsel expenses or permanently abandon rights in each non-entered territory.[33]

D. Mandatory 18-Month Publication

Every PCT or foreign application publishes at 18 months from the earliest priority date, and failure to file in a country before publication destroys rights in that country because the applicant's own published application becomes prior art against itself.[34] Thus, publication operates as a compulsory trigger: pay the high international costs now, or irrevocably forfeit protection in each country in which you have not effectively filed.

E. Renewal Fees Begin Before Grant in Many Jurisdictions

In Europe and many other systems, annual renewal fees begin early—even during pendency. The United States is one of the few exceptions, requiring maintenance fees only after grant, at only three points in time.[35] For applicants managing multiple national filings, these annual annuities rapidly accumulate into substantial financial burdens.

F. Examination, Rejection, Appeal, and Acceptance Timelines

Applicants typically wait years for examination results. For example, national-phase prosecution in Europe or the United States may take three to five years or longer before final allowance or rejection. Throughout this period, the application continues to generate expenditures for attorney responses, amendments, translations, annuities, and strategic decision-making.[36]

G. The Result: A Pattern of Predictable "Cost Explosions"

Foreign filings multiply expenses: multiple patent attorneys, multiple languages, multiple official fees, multiple translation costs, and multiple maintenance obligations.[37] None of these costs can be avoided once a publication occurs. Each is driven by statutory deadlines—not business readiness, not market timing, not budget cycles. Hence, after publication, the applicant must either (1) pay the "ransom"—the cumulative global filing, translation, and prosecution expenses required to preserve patent rights, or (2) renounce rights in every jurisdiction not entered before publication, knowing that the applicant's own publication will enable competitors to freely manufacture, use, or sell the invention in countries in which they have not reserved their patent rights.[38]

This dilemma is most acute because the entrepreneur rarely knows—at the 12- or 18-month point—whether the invention is commercially viable, or whether the cost of global patenting is justified.[39] Nevertheless, the system plays upon the entrepreneur's natural optimism and so forces them to gamble large sums on patent applications of uncertain value.

V. The Typical Alternative: Pure Trade Secret Protection

A trade secret–based IP strategy offers the inverse risk profile of the traditional patent strategy. It avoids global patent deadlines and the cascading costs associated with them, and it can—at least in theory—last indefinitely.

Due to the cost burdens of the traditional patent filing strategy, many innovators consider avoiding patent filings altogether. A trade secret strategy avoids the 12-month Paris deadline, avoids the 18-month publication cliff, avoids or postpones translation and annuity costs, and avoids the escalating, deadline-driven "ransom" of foreign filing fees.

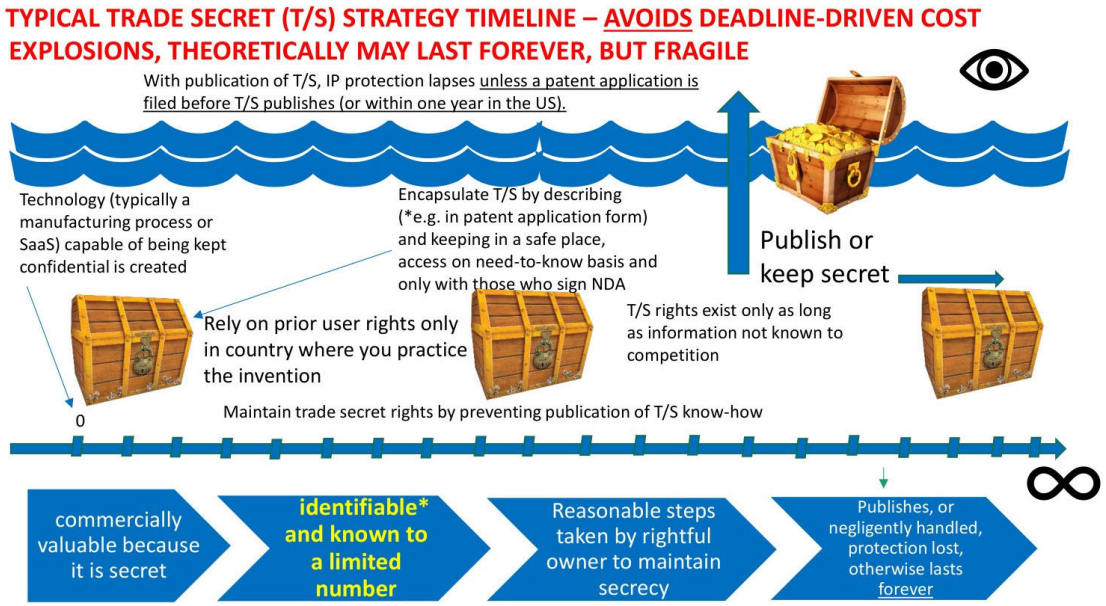


Fig. 2: typical trade secret strategy

But trade secret protection is fragile. Once the secret is disclosed—intentionally or accidentally—protection terminates permanently unless a patent filing had been made before such publication (or within the U.S. grace period, where applicable). Innovators therefore face a binary historical choice: file patents and lose trade secrecy, or maintain trade secrecy but lose patent rights.[40]

Does this matter? Figure 2 above illustrates the structural flaw of the global patent system as traditionally understood: innovators are forced into irreversible, high-cost commitments long before they possess the business intelligence required to make rational decisions.

A. The Trade Secret Path

Under a trade secret–only strategy, the innovator creates technology capable of being kept confidential—frequently a manufacturing process or a SaaS architecture

operating behind a secure firewall. He must encapsulate the trade secret, typically by preparing a written description (often in the format of a patent application) and storing it securely, limiting access strictly to those who sign NDAs and have a need to know. He can relies on prior-user rights, but only in the jurisdiction where the invention is actually practiced—rights that generally protect against infringement suits but do not prevent others from independently patenting abroad.[41] He maintains trade secret protection only so long as the information is not generally known, the information retains commercial value because it is secret, it is identifiable as such, and the owner has taken reasonable steps to preserve secrecy.[42]

In this way, trade secret protection is theoretically perpetual. But once the information becomes public—even inadvertently—protection terminates and cannot be revived.

B. The Critical Weakness: Publication of the Trade Secret

If the secret is ever disclosed—through product sales, disclosures to customers, careless handling, or even internal error—trade secret protection evaporates immediately leaving the innovator with nothing unless a patent application was filed before disclosure (or, in the United States, within the one-year grace period when applicable). Thus, the entrepreneur risks losing all rights if commercial activity exposes the underlying technology before a protective filing is made.[43]

C. The Core Tension: Patent vs. Trade Secret as Mutually Exclusive Choices

The conventional wisdom has long held that (1) filing a strategically important patent application inevitably results in publication at 18 months, and publication destroys trade secrecy; and (2) preserving trade secrets precludes obtaining patent protection—particularly when the act of selling a product discloses the inventive technology. Consequently, innovators historically have been forced to choose between patents or secrecy, but not both.[44]

D. Why Documentation Matters

Even within a trade secret–only strategy, proper documentation is critical. Preparing a patent-style disclosure serves as a formal record identifying what the trade secret consists of—an essential requirement for successful litigation in the event of trade secret theft.[45] But once the product of a secret process is offered for sale, even under NDA, the innovator may lose the ability to later seek U.S. patent protection unless a filing predates that offer.[46] After publication of the technology, the U.S. one-year grace period begins to run—but publication simultaneously destroys trade secrecy.[47]

E. Logical Outcomes Under the Traditional Framework

Under the traditional dichotomy:

Filing patents forfeits trade secret protection (because of 18-month publication). Preserving trade secrets forfeits patent protection (because later sales or disclosures extinguish novelty). Thus, until the synthesis of the U.S.-only hybrid strategies discussed herein, innovators faced only two choices: File patents, or preserve trade secrets.[48]

F. The Truth Available Under U.S. Law

Contrary to the historical assumption, trade secret rights and U.S. patent rights are not mutually exclusive. A properly managed, non-published U.S. Submarine application can preserve patent rights and enable the innovator to maintain trade secret protection well beyond 18 months, defeating the forced-choice paradigm.[49]

The remainder of this presentation introduces the U.S.-only hybrid strategies—Submarine, Mini-Sub, and UFO design filings—that defeat this dilemma by: postponing deadlines, maintaining secrecy until strategically advantageous, preventing cost explosions, and enabling innovators to switch paths only when evidence, markets, and funding justify it.[50]

VI. The Successive Refiling ("Mini-Sub") Strategy

The "mini-Sub" strategy—built around the successive refiling of U.S. provisional patent applications—offers innovators a low-cost mechanism to preserve trade secrecy, maintain "patent pending" status, and postpone major cost commitments, all while retaining the flexibility to seek full patent protection when timing and resources are optimal.[51]

A. Core Mechanics of the Mini-Sub Strategy

A U.S. provisional application, colloquially termed a "mini-Sub," is filed, then optionally updated and successively refiled near the end of each Paris-year cycle. Because provisional applications never publish, this strategy allows applicants to maintain secrecy while preserving forward-looking patent opportunities.[52]

Each mini-Sub has the following defining characteristics: (1) the preservation of Trade Secret protection and (2) the ability to claim "patent pending", (3) deferral of deadline-drive cost explosions, and (4) optional conversion to formal applications. Because provisional applications remain confidential and do not trigger publication, the innovator maintains trade secret protection indefinitely—so long as secrecy is otherwise maintained.[53] In addition, filing one or more mini-Subs enables the innovator to accurately market the technology as "patent pending," even while maintaining trade secrecy.[54] The mini-Sub structure delays cost-intensive foreign filings, formal patent drafting, translations, and national-phase commitments until the innovator chooses to convert to a regular application.[55] Still further, if circumstances indicate that the technology may not remain secret much longer, or if market validation warrants more robust protection, the

applicant can file a full U.S. or international application and reach back in time up to just under 12 months by claiming priority to the most recent mini-Sub.[56]

B. Understanding the Paris-Deadline Cycle Under the Mini-Sub Framework

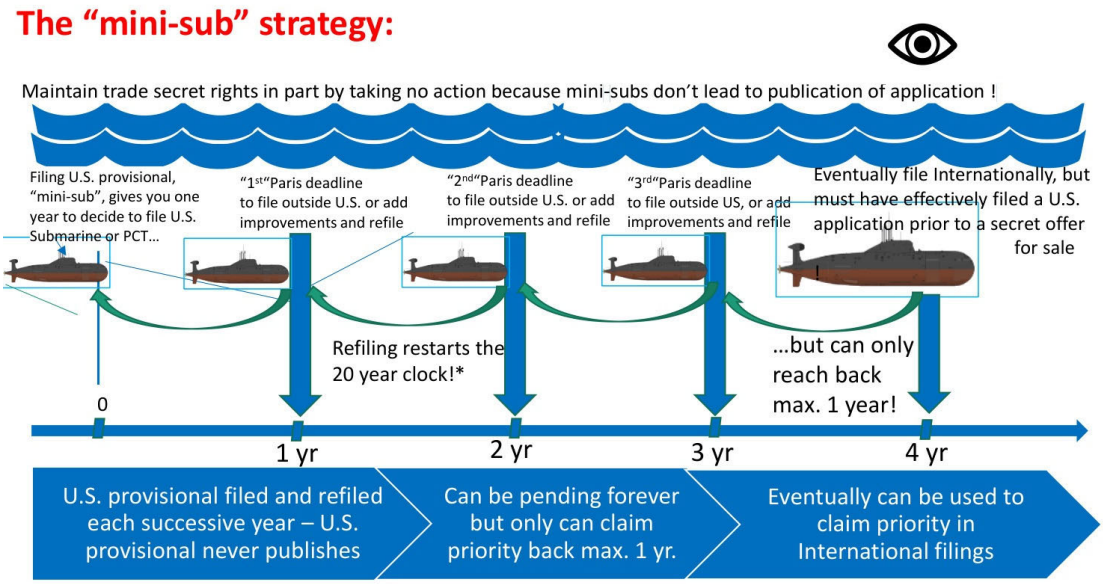


Fig. 3: U.S. mini-Sub Framework

The mini-Sub strategy operates as a rolling one-year cycle. Near the end of Year 1, the innovator may either (a) file a regular application (U.S., non-U.S., or PCT), or (b) refile an improved or updated provisional—thus resetting the one-year decision window. This process may continue through Year 2, Year 3, and so on. Ultimately, a formal filing (U.S., PCT, or non-U.S. filing) may claim priority to a mini-Sub filed within the last year. Crucially, refiling restarts the up to 21-year patent term clock, preserving long-term value when the innovator eventually pursues full patent protection.[57]

C. The Limits and Risks of the Mini-Sub Strategy

Despite its flexibility, the mini-Sub approach carries important limitations. First, there is the Secret Offer-for-Sale Risk. Unless a priority claim predates the first secret offer for sale, U.S. rights may be jeopardized if later challenged. Thus, mini-Subs are most useful when U.S. rights matter and priority can be established before any offer for sale, or U.S. rights are less important than the inexpensive ability to claim patent pending or to claim priority in non-U.S. jurisdictions.[58]

A mini-Sub is not a substitute for a Submarine application. Because a mini-Sub cannot remain pending forever (it expires at 12 months), it does not provide the long-term secrecy or pendency advantages of a full U.S. Submarine application, which can remain

pending—and unpublished—for many years. However, a mini-Sub can only reach back to support a claim of priority for one year. Beyond that, earlier filings cannot be captured into the chain.[59]

D. Strategic Assessment: Helpful, but Not Ideal

While the mini-Sub strategy provides meaningful benefits—including trade secret preservation, optionality, and cost deferral—it is not ideal for innovators who require long-term secrecy, multi-year pendency, protection in the face of potential secret commercialization, or early priority. Nevertheless, the mini-Sub remains better than nothing, particularly for founders and early-stage companies navigating uncertain funding, unclear market validation, or evolving product designs.

VII. The U.S. Submarine Application: A Long-Term, Non-Published Patent Strategy Unique to the United States

A U.S. Submarine application—a regular utility patent application filed with a non-publication request—constitutes one of the most powerful secrecy-preserving mechanisms available under the law. Unlike provisional (mini-Sub) filings, a Submarine application may remain pending and unpublished for many years, enabling the innovator to maintain trade secret protection while simultaneously preserving enforceable U.S. patent rights that can be activated at a strategically chosen moment.[60]

A. The Concept and Advantages of the U.S. Submarine Application

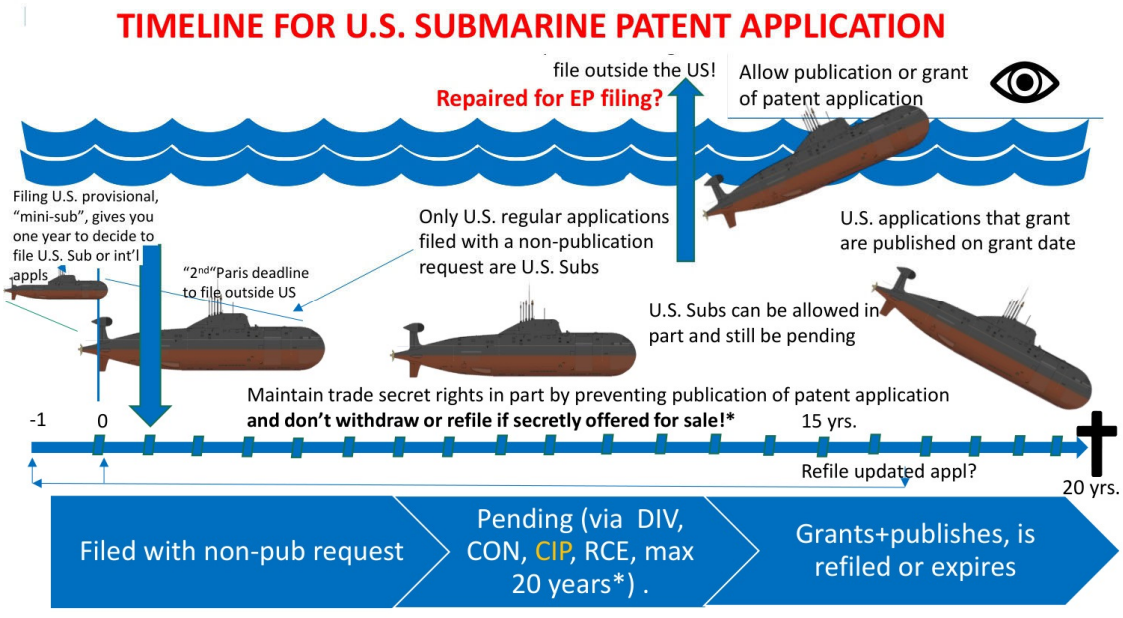


Fig. 4: U.S. Submarine Framework

A U.S. Submarine application stays fully pending and secret until the applicant elects to permit the patent to issue.[61] An applicant may even reach a stage where the USPTO has allowed claims, yet continue keeping the application pending for further years—maintaining trade secrecy, refining claim scope, and preserving optionality regarding timing of grant.[62] Because third parties cannot discover the existence of an unpublished Submarine application, a Submarine patent application, once granted, often "surfaces" as a surprise, revealing patent rights that competitors had no way to anticipate.[63]

In addition, an applicant may also choose to publish the technology separately—sacrificing trade secrecy intentionally—to prevent competitors from securing parallel patent rights in other jurisdictions. Notably, however, secrecy is not required to maintain non-publication status for the Submarine; it is required only for preservation of trade secret rights.[64] In other words, disclosure of the technology does not trigger a requirement to inform the US patent office in the way that filing a non-U.S. patent application does.

B. Procedural Requirements for Maintaining Submarine Status

To obtain and preserve Submarine status, a non-publication request must be filed together with the U.S. regular application.[65] The applicant must not file, or must timely notify the USPTO if it has filed, any corresponding foreign or international application that would require 18-month publication; failure to notify within the statutory time window results in automatic abandonment.[66] As long as the applicant complies with these conditions, the U.S. application remains unpublished indefinitely.[67]

The Submarine strategy ensures that the applicant need not relinquish trade secret rights until the precise scope of allowable claims is known.[68]

C. Strategic Benefits of Long Pendency

A Submarine application allows the applicant to (1) delay cost explosions—including translations, foreign filings, and large attorney expenditures—until business conditions justify the investment; (2) preserve the option to file continuation-in-part (CIP) applications, creating improved embodiments with their own later filing dates; (3) maintain trade secret protection for as long as the technology remains confidential; and (4) retain U.S. patent rights even if secrecy is later lost, whether through employee misconduct, competitor discovery, or unexpected disclosure.[69]

The Submarine is thus less fragile than a pure trade secret strategy because patent rights are preserved even in the event of involuntary loss of secrecy.

D. Interaction with International Patent Rights

International protection remains available so long as the invention remains secret. The applicant must simply notify the USPTO of any foreign filing within the prescribed period so that the U.S. application can be published. Importantly, European patent

applications filed by competitors before the Submarine's earliest priority date, but published after that date, do not impair U.S. patentability, nor do competitor U.S. applications filed after the Submarine's priority date. Thus, a Submarine applicant may still exclude earlier European filers from the U.S. market.[70]

E. Strategic Options Based on Priority Structures

The Submarine strategy enables multiple sophisticated maneuvers. One is known as the Second Paris Tactic. If the applicant learns that the technology has entered the public domain only within the time window of 12 months to 16 months of the filing the U.S. provisional to which the U.S. Submarine may claim priority, the applicant may forgo claiming priority in the Submarine application (essentially by waiting to the last minute to claim it and then deciding not to claim it) and use the Submarine application as the priority basis for an international application—assuming no on-sale bar applies.[71]

Another maneuver: the applicant can elect a dual-track strategy. If secrecy remains intact, the applicant may file internationally without claiming priority to the Submarine, while retaining the Submarine (converted into a non-Sub due to the non-US filing) exclusively for U.S. purposes.[72] A recently filed provisional (a mini-Sub filing) may serve as the priority anchor for the international case only if the Submarine is abandoned before any publication.[73]

The applicant may even redact portions of the Submarine application and keep them secret while submitting only a non-redacted portion for publication by the USPTO and for international filing—thus "having one's cake and eating it too."[74] The redacted material remains entirely secret; the published material supports foreign rights.[75]

VIII. Managing a U.S. Submarine Application: Requirements, Timing, and Strategic Execution

The effective use of a U.S. Submarine application demands disciplined management. Because the Submarine strategy hinges on secrecy, pendency, and informed timing, the applicant must actively supervise filings—not only in the United States but across all jurisdictions where disclosure, commercialization, or patent activity may affect trade secret rights or the viability of the Submarine itself.[76]

A. Foundational Requirements for a Properly Maintained Submarine Application

A Submarine application must be (1) properly filed with a valid non-publication request, ensuring that the application remains confidential unless and until the applicant elects otherwise; (2) monitored in relation to the applicant's own foreign filings, meaning that the applicant must ensure no foreign or international applications are filed—or, if they are, they must timely notify the USPTO so as to avoid automatic abandonment; (3) aligned with commercial conduct, including vigilance concerning any activity that may constitute

an "offer for sale," whether domestic or foreign, public or confidential; and (4) managed alongside competitor behavior, as third-party filings, publications, or product releases may influence the strategic timing of continuations, divisionals, or foreign filings.[77]

B. Maintaining Trade Secret Protection During Pendency

To preserve trade secret protection while the Submarine remains pending, the applicant must keep the technology genuinely confidential.[78] The Submarine application itself remains secret by operation of U.S. law, but trade secret status depends on actual secrecy practices—NDA use, restricted access, compartmentalization, and careful internal controls.[79]

C. Preparing the Submarine for Dual Use: Domestic and International

A well-prepared Submarine application should be drafted so that it can serve dual functions. First, it should function as a long-term, unpublished U.S. filing, capable of supporting continuation practice, claim refinement, and secrecy preservation. Second, it should function as a potential priority document for filings outside the United States—to which priority may be claimed within 12 months of filing under a "Second Paris" strategy—to preserve rights abroad if and when the applicant determines that foreign protection is warranted.[80]

D. Long-Term Pendency: Keeping the Submarine Submerged

A U.S. patent application can remain pending for up to twenty years from its filing date, provided the applicant files continuations, divisional applications, continuation-in-part applications, and requests for continued examination (RCEs). This procedural architecture—unique in its flexibility—permits an innovator to (1) continuously adjust claim scope as the market evolves, (2) preserve secrecy until commercial conditions justify surfacing, and (3) shield the technology from publication in ways impossible under European, Chinese, or other foreign regimes.[81]

Importantly, U.S. law permits amendments, intermediate generalizations, and "cherry-picking" in ways that foreign jurisdictions significantly restrict, making it easier to build derivative applications that keep the Submarine pending.[82]

E. The Strategic Significance of Avoiding Publication

If publication of the Submarine application is avoided, then trade secret rights remain intact for as long as the underlying technology stays confidential. The applicant retains the ability to file valid foreign applications years later, provided no publication—by the applicant or others—has occurred in the interim. The applicant avoids deadline-driven cost explosions, preserving foreign rights only when and where justified by commercial evidence.[83] Thus, the Submarine strategy creates a near-unique environment in which the innovator can delay irreversible decisions regarding disclosure, foreign filing,

and cost commitments until the market, funding landscape, and competitive intelligence warrant them.

F. Summary: When Submarines Are Most Useful

U.S. Submarine applications are particularly advantageous for technologies capable of being kept secret (e.g., manufacturing processes, SaaS operations, black-box systems), where the U.S. market is critical, when immediate foreign protection is not essential, and where the innovator seeks to control timing, preserve secrecy, and avoid or postpone global cost escalation. At the same time, the applicant must recognize that foreign competitors could independently file patent applications and obtain patent rights on similar technology outside the U.S. In countries where the innovator practices the invention, a prior-user defense may prevent infringement liability, but it does not prevent others from patenting. Thus, when the innovator believes that trade secret value may diminish, the safer course may be to file the contents of the Submarine internationally or publish the technology intentionally, thereby creating prior art that prevents competitors from obtaining valid patents elsewhere.

IX. Divisional Design Patent: the "UFO" ("Unidentified Filed Ornamental") Design

A further U.S.-only tactic complements the Submarine approach: filing design patent applications—what we call "UFO" designs—as divisionals or continuations off a pending U.S. utility application that already integrates complete design drawings. Properly executed, this tactic ultimately yields surprise-effect design rights that can issue quickly and, crucially, enjoy a fixed post-grant term measured from grant, not from the original utility filing date while benefiting from the original utility application effective filing date to define the prior art. The result is a strategically timed form of protection that can extend beyond the practical 20-year arc of the utility family.[84]

A. What the UFO Design Strategy Is

If a first filing (which need not be the filed in the U.S. first) contains drawings that show a full set of views for at least one ornamental design of the invention—covering physical articles and graphical user interfaces (GUIs)—the applicant may, any time during pendency of the related, later-filed U.S. utility patent application, file a design application as a divisional/continuation to seek protection for those decorative/ornamental aspects. Because most non-U.S. practitioners do not look for or recognize these integrated design disclosures in a pending U.S. case as inchoate design rights, the ultimate grant of such a design can come as a surprise even to seasoned non-U.S. counsel.[85] In this sense, they are "Unidentifiable Filed Ornamentals": the design rights are "filed" but hard to identify until they surface as issued design patents. No other country or region offers this precise combination of timing, pendency, and grant-based term.[86]

B. Timing, Publication, and the "Surfacing" of UFO Designs

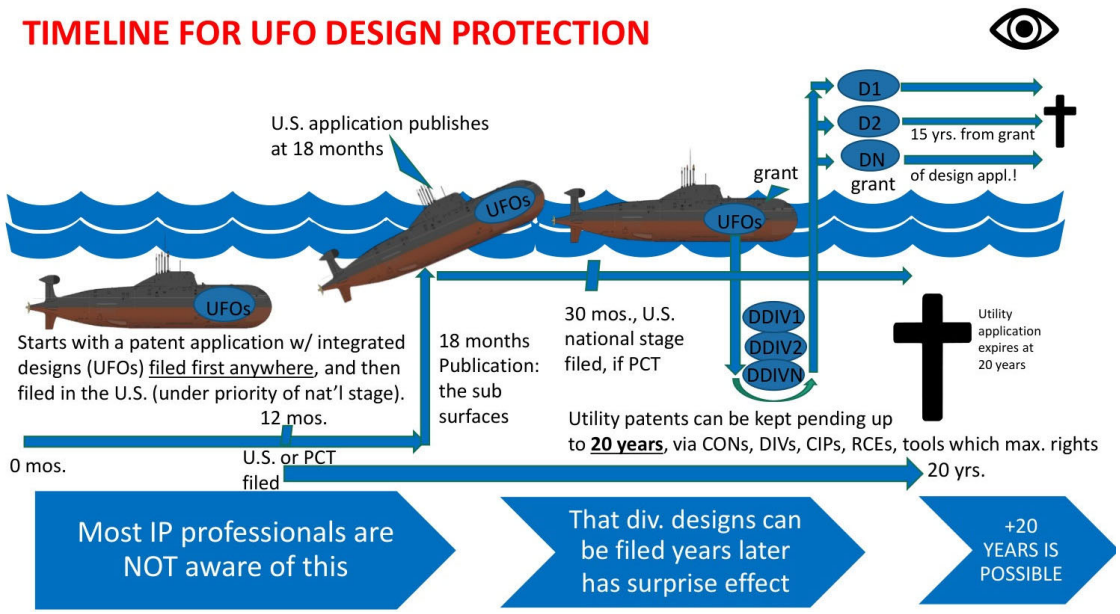


Fig. 5: UFO design filing strategy

A key procedural advantage follows from U.S. design-prosecution dynamics: design applications publish only at grant. Thus, when UFO designs are pursued as divisional designs off a still-pending utility parent, one may time their filing late in the utility's prosecution, allowing the designs to issue suddenly and without pre-grant publication. This timing can be calibrated to market events, competitive sightings, or licensing discussions—maximizing surprise value and enforcement leverage.[87] Because the utility parent can remain pending (especially when the broader strategy also employs a Submarine), the applicant can file successive design divisionals[88] as needed. In practical terms, that means the portfolio can be staged so that new design rights surface years after the original utility was filed, but still claim effective priority back to the integrated drawings in the parent.[89]

C. Term: Why UFO Designs Can Outlast the Utility Family

An especially surprising benefit of late-filed UFO designs is that U.S. design patent term is measured from its date of grant. Consequently, a UFO design that issues years after the utility parent was filed will still enjoy its full post-grant term (e.g., fifteen years), thereby potentially extending enforceable protection beyond the utility family's practical 20-year horizon. This timing lever is unavailable in jurisdictions that tie design duration or enforcement milestones to earlier filing dates or that lack comparable divisional timing flexibility.[90]

D. Procedural Frame and Practicalities

Starting point. The pathway begins with a patent application that integrates designs ("UFOs")—filed first anywhere and then in the United States under priority or via national stage from a PCT. A U.S. utility parent will publish at 18 months unless it is a Submarine. UFO divisional designs are filed off of the pending parent application, however, publish only upon grant.[91] Because the utility case stays pending, one may prosecute divisional design 1, 2 (referred to in Figure 5 as DDIV1, DDIV2, … DDIVN, each potentially maturing into design 1, 2 or D1, D2, … DN), with each design patent enjoying a 15 year post-grant term.[92]

Through routine prosecution management, grant timing can be influenced (for example, by requesting accelerated examination), sharpening the element of surprise.

E. Characteristics of "UFO" Design Applications

No U.S.-first filing requirement: A UFO design need not be filed in the United States first, because 18-month publication is acceptable for the initial filing; however, the original first-filed utility applications (PCT, European, etc.) must include integrated designs, ideally all seven views.[93]

F. Early priority; late enforcement

The divisional design benefits from the priority date of the earlier utility application potentially filed years before, while the design patent's enforceable term runs 15 years from grant.[94]

G. Timing the grant to extend protection

Because U.S. design term is grant-based, UFO designs allow applicants to time grant and thereby extend effective patent life beyond the 20-year utility horizon. Cost management for U.S. designs. UFOs postpone deadline-driven cost explosions, but only for designs in the United States.[95]

H. Less fragile than secrecy alone

Unlike pure trade secret protection, a granted design does not depend on ongoing secrecy. International design protection can still be pursued up to the point at which the design is no longer secret.[96]

I. Strategic Consequences and Use Cases

Surprise enforcement: Competitors who believed themselves insulated by the absence of separate, visible design filings may be faced with a cease and desist notice based on freshly issued U.S. designs, enabling takedowns[97] (e.g., online marketplace enforcement), injunctive leverage, and quick settlements.

Bridge to or beyond utility patent life: Because these designs can issue late relative to the utility timeline, they serve as bridge rights—extending meaningful protection or inflection-point leverage while the utility patent approaches expiration.[98]

Portfolio balance: UFO designs complement, rather than replace, utility protection. Where ornamental appearance drives consumer recognition (including GUI look-and-feel), UFO designs can be decisive even when utility claims face headwinds.[99]

J. Summary: Why the UFO Strategy Is "U.S.-Only" in Effect

The combination of (1) integrating complete design drawings in the initial U.S. utility; (2) the ability to file design divisionals/continuations off that pending utility; (3) no pre-grant publication for designs; and (4) a design term measured from grant, yields a uniquely American mechanism for long-horizon, surprise-effect design protection. Properly planned, it allows design patents to surface well after competitors have committed tooling, inventory, and shelf space—at precisely the moment when enforcement leverage is greatest.

X. Combined Submarine Application with UFO Designs

The hybrid strategy that merges a U.S. Submarine application with UFO (Unidentified Filed Object) divisional designs represents one of the most sophisticated, timing-controlled, secrecy-preserving IP mechanisms available under U.S. law. It leverages the Submarine's long-term pendency and non-publication together with the uniquely grant-based term and late-stage enforceability of U.S. design patents. The combination yields a portfolio architecture that is exceedingly difficult for competitors to anticipate or counter.

A. Overview of the Hybrid Framework

A U.S. utility application, filed with a non-publication request, begins the process. This application must be the first and only patent filing, ensuring that it remains unpublished. Because utility applications can be kept pending for up to twenty years, via continuations (CONs), divisionals (DIVs), continuations-in-part (CIPs), and requests for continued examination (RCEs), the Submarine establishes a long-horizon environment in which integrated design drawings can later support UFO divisional design filings.[100]

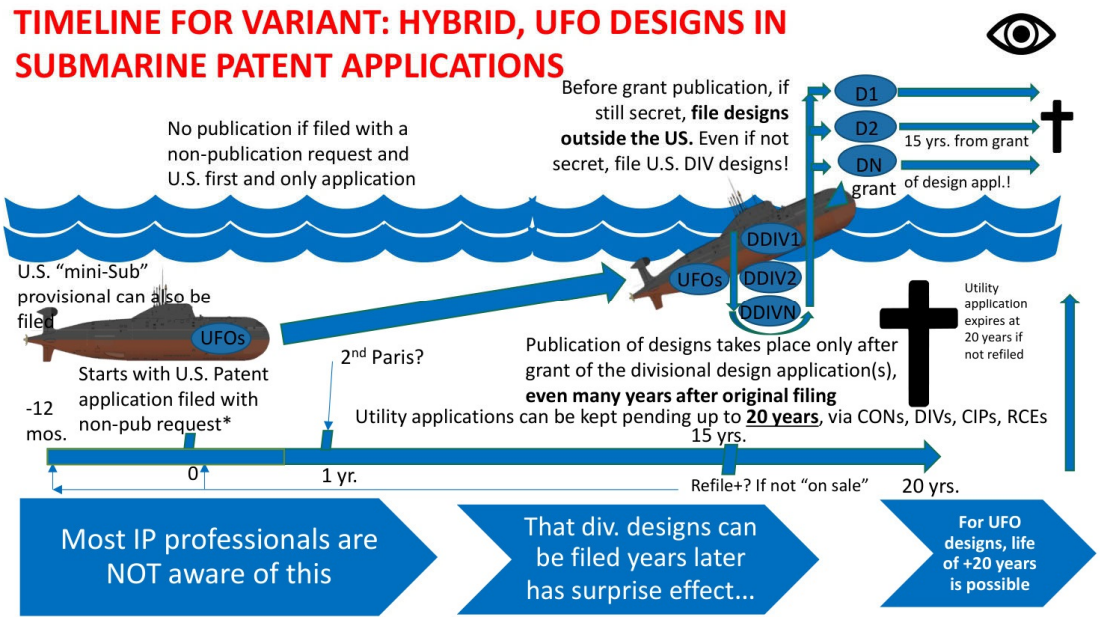


Fig. 6: Hybrid Submarine and UFO Design Framework

B. Filing Sequence and Term Structure

The basic timeline proceeds as follows. At 0 months, a U.S. patent application is filed with a valid non-publication request, ensuring confidentiality. At minus 12 months, the Submarine may be preceded by a provisional ("mini-Sub") filing, which preserves priority flexibility in the U.S. Throughout pendency at the appropriate times, UFO design divisionals (DDIV1, DDIV2, … DDIVN) may be filed at will. Each such divisional yields a design patent (D1, D2, … DN) that enjoys a statutory 15-year term from grant, untethered to the original utility filing date. Because design patents publish only at grant, these late-filed UFO designs can surface many years after the original utility filing, often at moments when the competitive landscape renders them maximally disruptive.[101]

C. Publication Dynamics and Secrecy Preservation

Publication of design divisionals occurs only after grant, allowing (1) long-term secrecy, so long as the Submarine remains pending and unpublished; (2) strategically timed surfacing of design rights, synchronized with market entry, competitive threats, or enforcement needs; (3) preservation of trade secret rights until the applicant affirmatively elects to surface either the utility patent or the design portfolio. If the design remains secret, an applicant may file foreign design applications before grant publication. Even if no longer secret, U.S. DIV designs may still be filed as long as the utility parent remains pending.[102]

D. Strategic Advantages of the Hybrid Model

This combined strategy offers (1) long-term pendency (up to 20 years) of the utility parent through CONs, DIVs, CIPs, and RCEs; (2) late-stage filing of divisional designs—often years after the original utility filing—yet supported by the original design figures embedded in the parent; (3) a grant-based 15-year design term, enabling design patents to outlast the effective 20-year utility term by many years; (4) timing control, allowing applicants to accelerate or decelerate design prosecution to synchronize grant with commercial events; (5) less fragility than trade secrets, because once granted, design patents do not depend on secrecy; and (6) international design protection, still possible as long as the design has not become publicly available before foreign filing deadlines. Concerning the latter point, yes, the designs embodied in the products sold will have to be filed internationally before the design is public, but all other alternate designs can remain pending and secret, awaiting the most favorable strategic moment for divisional filing and grant.[103]

E. Conditions for the Hybrid Approach

This hybrid approach requires filing the U.S. application first, with a timely non-publication request. The filed utility parent must include integrated designs—complete view sets—within the original Submarine utility filing. All UFO designs must be filed before the parent utility application grants or is abandoned. Pendency can be maintained through strategically deployed continuations and RCEs.[104]

F. Why the Hybrid Strategy Is So Powerful

The hybrid strategy's force lies in its time asymmetry: competitors proceed assuming that what they see is all that exists, unaware that a confidential Submarine application may still be pending and that multiple waves of design patents may surface later—each with long grant-based terms and immediate enforcement capacity.[105] This architecture gives innovators extended leverage well beyond normal patent horizons, layered enforcement options (utility, design, trade secret), cost deferral, sometimes for many years, and surprise enforcement at commercially advantageous moments.[106]

XI. Case Study 1 — Sports Product: the "Flipper"

A. Facts and posture

Flipper Inc. of Texas ("Flipper Co.") registers their brand "Flipper"™ for a simple, inexpensive sporting-goods product and files a U.S. utility patent application that includes several critical views of the product's design. No non-publication request is filed (i.e., this is not a Submarine application). After ten years of examination before the USPTO, despite the efforts of two IP firms, Flipper Co. is unable to obtain a utility patent. Meanwhile, the Flipper goes viral. Competitive intelligence indicates that Flipper Co's product design and

trademarks have been infringed by a number of companies of nefarious origin. Nearly 500 companies list competing products of the same design, many using the same trademark, on Amazon, eBay, and Alibaba.

B. Strategic pivot

In order to make a claim for lost profits, Flipper's attorneys take the design views already present in the original utility filing and prepare and file a "UFO" divisional design application, requesting accelerated examination.[107]

C. Outcome

Within three months, the USPTO grants the design, conferring a statutory 15-year term from grant.[108] Because the utility patent application had already been pending for ten years, this result extends patent protection that Flipper could obtain (if the utility application were ever to grant) beyond the 20-year term measured from the original utility effective filing date—albeit only for design rights.

D. Enforcement and monetization

Counsel deploys the issued design patent to pursue online takedowns and settlements. A federal design patent and trademark infringement suit is filed in the Eastern District of Texas, naming all 500 competitors and blocking their internal accounts with Amazon, eBay and Alibaba. A federal court judgment in Flipper's favor is entered enjoining the further manufacturing, importing, advertising, promoting, offering to sell, selling, distributing infringing goods and awarding lost profits exceeding 22 million dollars.[109] Flipper Co.'s attorneys seize the funds in the internal accounts and collect against the award. At least for a few months, competition essentially disappears from Amazon, eBay and Alibaba.

XII. Case Study 2 — Printed Circuit Production

A. Initial filings

Circuit Tech SA of Switzerland invents a clever printed-circuit manufacturing process and designs several alternate housing designs and, on the same day, files both (i) a U.S. "mini-Sub" provisional and (ii) a U.S. Submarine application—a hybrid Sub and UFO. The filings include several critical views of the housings produced by the secret process.[110]

Before the first year lapses, Circuit Tech conducts business intelligence research and confirms no offer for sale or public disclosure has occurred and, because nothing was found that might affect the novelty or inventiveness of the invention defined in the application, abandons the first mini-Sub, then files a second mini-Sub. The company continues with successive mini-Sub filing (rolling placeholders) near each Paris deadline

three times over, performing an updated business intelligence search each time. Their successive provisional patent filings preserve placeholder priority for potential international filings.[111]

B. Anchoring a Submarine

Before one year from the last mini-Sub (the one filed less than a year earlier, and before an offer for sale), Circuit Tech files a U.S. Submarine application and keeps it active—so that, if an offer for sale is later alleged to have taken place more than a year before an even earlier priority date, U.S. rights remain firmly anchored.

C. Allowance held Underwater

After three years of prosecution, the USPTO allows the Submarine's claims. Circuit Tech, however, is unwilling to give up trade secret protection by allowing the publication of the granted patent. Counsel therefore files successive RCEs, preserving the allowed claims while continuing to pursue claim variants, thereby keeping the application pending and unpublished.[112]

D. Surfacing if needed

If business intelligence later indicates a competitor is developing similar technology, Circuit Tech can allow the Submarine to grant.

E. Parallel UFO leverage

At any time during utility pendency, Circuit Tech may file UFO divisional designs based on the integrated drawings—which, when granted, yield designs with nine- or ten-year-old priority and a fresh 15-year enforceable term from grant, thereby outlasting the utility family's 20-year window.

F. Trigger event and coordinated filings

Business intelligence reveals that a competitor is using an infringing process in a housing similar to one of Circuit Tech's integrated designs, and recognizing that trade secrecy can no longer be maintained, Circuit Tech allows the U.S. Submarine to grant. Before grant, Circuit Tech files embedded UFO divisional designs mapped both to the competitor's product and to Circuit Tech's own product; and, before grant, files a Hague international design filing for the designs and a PCT application claiming priority to the earliest still pending "placeholder" mini-Sub.[113]

G. Business result

Armed with (i) design patents covering products produced by the process, (ii) a utility patent, and (iii) pending international rights, Circuit Tech successfully licenses

competitors and secures cross-licenses to complementary technologies—calibrating license duration to match the design patent term.

XIII. Practical Drafting and Contracting Considerations for NDAs and Joint-Development Agreements in Light of the Submarine Strategy

The effective implementation of a U.S. Submarine strategy depends not only on filing mechanics but also on the careful structuring of non-disclosure agreements (NDAs) and joint-development agreements (JDAs). Because Submarine applications derive much of their strategic power from secrecy, timing, and the avoidance of triggering events such as foreign filings or inadvertent offers for sale, parties collaborating on technology must contract with an eye toward preserving these options.[114]

A. The Critical Role of Monitoring

Successful deployment of a Submarine strategy requires ongoing monitoring of both the innovator's own actions and those of potential collaborators or competitors. This includes tracking disclosures, testing activities, offers for sale, and any filing behavior that might compromise secrecy or priority. Without active monitoring, the advantages of a Submarine application may be unintentionally forfeited.[115]

B. Recommended NDA and JDA Provisions

Where collaboration is contemplated, agreements should incorporate clauses specifically designed to safeguard Submarine-related rights. Such provisions may include:[116]

(1) Prohibition on Unauthorized Submarine Filings: The party receiving the confidential information should be forbidden from filing any Submarine application without explicit prior permission from the disclosing party with a further safeguard being that, if no permission is sought within a defined time window, ownership of any such Submarine filing by the receiving party automatically reverts to the disclosing party;[117]

(2) Non-Challenge Clauses: the receiving party should agree not to challenge the disclosing party's patent rights on the basis of any alleged offer for sale, which seeks to protect against opportunistic invocation of an on-sale bar in circumstances where the parties intended confidentiality;[118]

(3) Strict Confidentiality Treatment for Any Arguable Offer for Sale: Any solicitation, quotation, or proposal that could conceivably be characterized as an "offer for sale" should be deemed strictly confidential and treated as such by both parties;[119]

(4) Non-Characterization Clauses: the parties may stipulate that any communication directed to the receiving party shall not be construed as an offer for sale,

ensuring that cooperative technical exchanges do not later become grounds for invalidity arguments;[120]

(5) Liquidated Damages for Breach: if confidential information relating to any arguable offer for sale is wrongfully disclosed or later used to invalidate the disclosing party's patent rights, the agreement may provide that liquidated damages become payable.[121]

C. Practical Consequences

These contractual protections ensure that the Submarine strategy remains viable even in multi-party development environments. They prevent inadvertent triggering of statutory bars, guard against strategic gamesmanship between collaborating companies, and ensure that neither party's conduct compromises long-term secrecy or patentability.[122]

Parallel to these contractual considerations, applicants should recall that utility applications may be kept pending for up to twenty years through the filing of continuations (CONs), divisionals (DIVs), continuations-in-part (CIPs), and requests for continued examination (RCEs).[123] This long-term pendency reinforces the Submarine strategy by allowing claims to evolve over time, while secrecy is preserved.

Similarly, in the hybrid Submarine-plus-UFO framework, UFO design filings may be prosecuted as divisional design applications, with the surprising advantage that these design patents grant for a fifteen years from the date of grant, making late-filed design divisionals potent long-term enforcement tools.[124]

XIV. U.S. Subs and UFOs Are Not Per Se "Gaming the System"

Because the modern U.S. Submarine is not susceptible to the same abuses that characterized certain pre-1996, Lemelson-style practices (applications that could remain pending for decades and, once granted, enjoyed a 17-year post-grant term)[125], there is no specific risk that ordinary use of these strategies will be condemned as inequitable conduct—such as laches or equitable estoppel—merely by virtue of delay.[126] In any event, Congress has enacted a six-year statute limiting the recovery of patent damages, and that limitation governs the remedial horizon for damages claims regardless of prosecution history.[127] As a practical matter, this damages limitation constrains recovery windows associated with infringement and does not turn on the mere allowance of claims; inchoate rights at allowance do not trigger a separate limitations bar, and patentees frame damages by reference to the statute rather than the moment of allowance.[128]

A. A Supreme Court Clarification on "Laches" in Patent Damages

The U.S. Supreme Court has made clear that laches cannot bar a legal claim for damages brought within the Patent Act's six-year look-back period. In SCA Hygiene Products Aktiebolag v. First Quality Baby Products, LLC, the Court held that applying

laches within a statutory limitations period would improperly override Congress's judgment and the traditional role of equitable defenses.[129]. Thus, when a patentee sues for damages within the § 286 window, laches cannot be interposed to cut off otherwise timely damages.[130]

B. Using Sub and UFO Tactics Is Lawful, Defensive, and Widely Available

Employing Submarine and UFO design tactics is simply taking advantage of U.S. law—an option open to everyone, including competitors. These approaches are defensive in orientation: they aim to preserve trade secrets as long as possible while reserving patent rights, rather than to spring unfair surprises for their own sake.[131] Because intentional delay arguments in equity (e.g., unclean hands or equitable estoppel) require misleading conduct and reliance by a specific adverse party, the mere use of Sub or UFO strategies—without targeting a competitor or making false assurances—is not, by itself, inequitable.

Because the Submarine strategy is employed primarily to protect the applicant's own trade secrets, and because equitable defenses turn on case-specific facts (e.g., deception, reliance, prejudice), applicants who avoid targeted misleading acts and refrain from promising not to assert rights against specific competitors should be secure against invalidation premised on "unclean hands."[132]

C. Are Submarine Patents and UFO Designs Ethical?

To dispose of the threshold concern: trade secret preservation is a legitimate policy choice. In Kewanee Oil Co. v. Bicron Corp., the Supreme Court held that state trade secret law is not preempted by the federal patent laws and that trade secret protection coexists with, and does not undermine, federal patent policy encouraging invention.[133] Large institutions routinely preserve trade secrets, and nothing in American law suggests that choosing secrecy—particularly while reserving the right to patent in the United States—is unethical. The misgivings some express about "submarine patents" generally reflect the pre-1996 landscape, not the "new" Submarine practice described here.[134]

To underscore: the "new" Submarine application is not subject to the old 17-year-from-grant dynamic and does not replicate the conduct that triggered the prosecution-laches line of cases against Lemelson-era patents. The modern framework—term measured from filing, publication rules, and statutory limits—obviates the core policy concerns that animated those decisions.[135]

D. Laches, Unclean Hands, and Equitable Estoppel: Practical Boundaries

The statutory six-year look-back for damages cabins the remedial stakes and, as noted, laches cannot bar damages claims brought within that period.[136] Unclean hands and equitable estoppel remain available in appropriate circumstances, but they require specific proof (e.g., a misleading act, the opponent's reliance, or misconduct closely tied to the

relief sought). Consequently, where Sub and UFO strategies are used defensively—without targeted misrepresentations or promises to specific competitors—there is no inherent ethical or equitable defect.[137]

E. Takeaways

Statutory Damages Window: Recovery of patent damages is limited by 35 U.S.C. § 286; suits filed within that period are not barred by laches.[138]

Trade Secrets Are Legitimate. The Supreme Court confirms that trade secret protection complements—not conflicts with—patent policy.[139]

Modern "Submarine" ≠ Old Abuses. The "new" U.S. Submarine strategy differs markedly from pre-1996 practices that triggered prosecution-laches rulings.[140]

Equity Is Fact-Specific. Absent misleading acts and reliance, equitable defenses such as unclean hands or estoppel do not convert lawful strategy into "gaming the system."[141]

XV. Conclusions

If your innovation is susceptible to trade secret protection—or if you are unwilling to accept 18-month publication—the prudent course is to file in the United States first (effectively before any secret offer for sale) and then follow up with a regular U.S. application accompanied by a non-publication request. Under U.S. law, when an applicant certifies upon filing that the invention has not been and will not be the subject of any foreign or international filing that mandates 18-month publication, the USPTO does not publish the application, thereby preserving trade secrecy while reserving U.S. patent rights.[142]

Filing before any offer for sale—even one made confidentially—is critical. The Supreme Court has made clear that a secret commercial sale to a third party may place the invention "on sale" and thus bar patenting if it predates the effective filing date, notwithstanding confidentiality.[143] Avoiding publication through a valid non-publication request maximizes flexibility on when to enter foreign systems and thus helps postpone deadline-driven cost explosions while reserving U.S. patent rights.[144]

Filing at least a U.S. Submarine application may furnish significant fallback protection should trade secrecy later be lost, because U.S. law recognizes trade secret protection as a legitimate, complementary incentive alongside patents; the two systems are not in conflict.[145]

Closing Thoughts

"You have to learn the rules of the game and then you have to play better than anyone else."

—Albert Einstein

Know the rules and use them effectively. If someone chooses not to learn the rules, they cannot later claim unfairness simply because their opponent understood and applied them. Ignorance of the law has never been a valid excuse.

XVI. Definitions

CIP (Continuation-in-Part). A continuation-in-part patent application—only in the United States—that adds more technical improvements to an earlier-filed application, while preserving appropriate priority to the earlier disclosure.

CON (Continuation). A continuation patent application—only in the United States—that does not add technical improvements and does not pursue patent claims that we subject to an election requirement. One could call UFO designs "UFO Cons" for this reason, but continuations are not understood internationally because they are unique to the U.S.

CNIPA. The China National Intellectual Property Administration, China's national patent office.

DDIV1, DDIV2, … DDIVN. Divisional Design 1, Divisional Design 2, etc.

D1, D2, … DN is a granted UFO design, Design 1, Design 2, etc.

DIV (Divisional). A divisional patent application that does not add technical improvements and pursues patent claims that we not pursued in the parent, usually claims subject to an election requirement, but not in the case of design divisionals.

EPO. The European Patent Office, the examining authority for European patent applications under the European Patent Convention.

GUI. Graphical User Interface, i.e., the visual/ornamental aspects of user-facing screens or display elements.

Mini-Sub. A U.S. provisional application, useful for claiming priority without sacrificing the strategic option of filing a Submarine patent application.

PCT. The Patent Cooperation Treaty, i.e., an international patent application mechanism that defers national/regional filings and facilitates coordinated international prosecution.

UFO Design. An "Unidentifiable Filed Ornamental" design, i.e., a "divisional" (actually a continuation) design application filed off a regular U.S. patent application to protect ornamental aspects (including physical articles and GUIs) reflected in integrated drawings.

USPTO. The U.S. Patent & Trademark Office, the federal agency that examines and grants U.S. patents and designs and registers trademarks.

RCE. A Request for Continued Examination, i.e., a renewed request for examination—available only in the United States—to continue prosecution of a pending utility application.

SaaS. Software as a Service, i.e., online services delivered from a server environment (essentially always behind a secure firewall).

Submarine Application. A secret patent application, i.e., a U.S. application filed with a non-publication request, available only in the United States, that remains unpublished unless and until it grants (or until the applicant rescinds non-publication or triggers publication by foreign filing).

WIPO. The World Intellectual Property Organization, sometimes colloquially called the World Patent Office, which administers international IP systems (including the PCT).

Footnotes

1. Swiss Fed. Inst. of Intellectual Prop. (IPI), *Filing European and International Patent Applications*, https://www.ige.ch/en/protecting-your-ip/patents/international-application (last visited Mar. 2026).

2. 35 U.S.C. § 184; 37 C.F.R. § 5.11; *Code de la propriété intellectuelle* [C. Prop. Intell.] arts. L.612-8, L.612-9 (Fr.); Patent Law of the People's Republic of China (P.R.C.) art. 19; Implementing Regulations of the Patent Law of the P.R.C. r. 8.

3. Int'l Monetary Fund, *World Economic Outlook: Global Economy in Flux, Prospects Remain Dim* (Oct. 2025), https://www.imf.org/en/publications/weo/issues/2025/10/14/world-economic-outlook-october-2025 (last visited Mar. 2026); World Bank, *GDP (Current US$)*, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD (last visited Mar. 2026).

4. See U.S. Pat. & Trademark Off., *USPTO Fee Schedule*, https://www.uspto.gov/learning-and-resources/fees-and-payment/uspto-fee-schedule (last visited Nov. 2026) (filing, search, examination, issue, and maintenance fees under 37 C.F.R. §§ 1.16–1.20); Eur. Patent Off., *Fees (EPC/PCT/UP)*, https://www.epo.org/en/applying/fees (last visited Nov. 2026); Bruno van Pottelsberghe de la Potterie & Didier François, *The Cost Factor in Patent Systems*, 9 J. Indus. Competition & Trade 329 (2009) (measuring patenting cost per claim and per capita and finding that, on that basis, protection designating thirteen European countries cost roughly ten times as much as U.S. protection through grant).

5. 35 U.S.C. § 154(a)(1) (right to exclude throughout the United States); Eur. Patent Off., *Fees (EPC/PCT/UP)*, https://www.epo.org/en/applying/fees (last visited Mar. 2026); J.A. Kemp, *Translation Requirements for Validation of European Patents*, https://www.jakemp.com/knowledge-hub/translation-requirements-for-validation-of-european-patents (last visited Mar. 2026); Eur. Patent Off., *Cost of a Unitary Patent*, https://www.epo.org/en/applying/european/unitary/unitary-patent/cost (last visited Mar. 2026).

6. 35 U.S.C. § 41(b)(1); 37 C.F.R. § 1.20(e)–(g) (maintenance fees due at 3½, 7½, and 11½ years after grant); Convention on the Grant of European Patents art. 86(1), Oct. 5, 1973, 1065 U.N.T.S. 199 (as revised) [hereinafter EPC]; EPC r. 51(1) (renewal fees payable to the EPO for the third and each subsequent year, calculated from the date of filing); EPC art. 141 (national renewal fees after grant); see also supra note 5.

7. Am. Bar Ass'n, *Model Rules of Pro. Conduct* r. 1.5(c), https://www.americanbar.org/groups/professional_responsibility/publications/model_rule s_of_professional_conduct/rule_1_5_fees (last visited Mar. 2026); Am. Intell. Prop. Law Ass'n, *Report of the Economic Survey* (2023).

8. Agreement on a Unified Patent Court art. 83, https://www.epo.org/en/legal/up-upc/2022/upca_83.html (last visited Mar. 2026); Unified Patent Court, *FAQ: Opt-Out*, https://www.unifiedpatentcourt.org/en/faq/opt-out (last visited Mar. 2026).

9. See supra note 8 (citing UPCA art. 83 and UPC Opt-Out FAQ).

10. 35 U.S.C. §§ 154(a)(1) (right to exclude throughout the United States), 261 (patents may be assigned and licensed).

11. 35 U.S.C. § 122(b)(2)(B)(i); 37 C.F.R. § 1.213.

12. 35 U.S.C. § 102(b)(1).

13. Beck Greener, *Could a Grace Period for Patent Filings Be Introduced into the EPC?* (Oct. 2022), https://www.beckgreener.com/could-a-grace-period-for-patent-filings-be-introduced-into-the-epc (last visited Mar. 2026).

14. 35 U.S.C. § 102(b)(1)(A) (a disclosure made one year or less before the effective filing date by the inventor, or by another who obtained the subject matter from the inventor, is not prior art); U.S. Pat. & Trademark Off., *Manual of Patent Examining Procedure* [hereinafter MPEP] § 2153.01(a); compare EPC arts. 54(2), 55(1) (any public disclosure before the filing or priority date forms part of the state of the art, subject only to a six-month exception for evident abuse or display at an officially recognized exhibition); see also supra notes 12–13.

15. 35 U.S.C. § 102(a)(1), (b)(1)(A); *Helsinn Healthcare S.A. v. Teva Pharms. USA, Inc.*, 586 U.S. 123, 131–32 (2019) (confidential sale to a third party can place an invention "on sale" under the AIA); *Pfaff v. Wells Elecs., Inc.*, 525 U.S. 55, 67–68 (1998) (commercial offer for sale of an invention that is ready for patenting); MPEP § 2152.02(d) (secret sales qualify as prior art, but inventor-originated sales made one year or less before the effective filing date may be excepted under § 102(b)(1)). Because no court has yet confirmed that the § 102(b)(1)(A) exception reaches an inventor's own confidential sales, the prudent course remains to file before any offer for sale. Compare EPC art. 55(1) (six-month non-prejudicial disclosure limited to evident abuse and certain officially recognized exhibitions).

16. See supra note 11 (citing 37 C.F.R. § 1.213(a)).

17. 18 U.S.C. § 1839(3) (information remains a trade secret so long as reasonable secrecy measures are maintained and it is not generally known); 35 U.S.C. § 122(a), (b)(2)(B)(i); cf. 35 U.S.C. § 102(a) (later disclosures do not defeat an application filed before them).

18. 35 U.S.C. § 122(a) (applications kept in confidence), (b)(2)(B)(i); 37 C.F.R. §§ 1.14(a), 1.211(b), 1.213(a); see Mark A. Lemley & Kimberly A. Moore, *Ending Abuse of Patent Continuations*, 84 B.U. L. Rev. 63 (2004) (describing "submarine" patents that remain hidden in prosecution and emerge only at issuance).

19. Uruguay Round Agreements Act, Pub. L. No. 103-465, § 532(a), 108 Stat. 4809, 4983–85 (1994) (utility term of twenty years from filing for applications filed on or after June 8, 1995); American Inventors Protection Act of 1999, Pub. L. No. 106-113, div. B, § 1000(a)(9), tit. IV, subtit. E, 113 Stat. 1501, 1501A-561 (1999) [hereinafter AIPA] (eighteen-month publication with the non-publication option); *SCA Hygiene Prods. Aktiebolag v. First Quality Baby Prods., LLC*, 580 U.S. 328 (2017); EPC art. 93(1); Patent Cooperation Treaty art. 21(2)(a), June 19, 1970, 28

U.S.T. 7645, 1160 U.N.T.S. 231 [hereinafter PCT]; Zhuanli Fa (专利法) [Patent Law of the People's Republic of China] art. 34 (2020); see infra Section XIV.

20. 35 U.S.C. § 122(b)(2)(B)(i) (certification that the invention has not been and will not be the subject of a foreign or international application requiring eighteen-month publication); 37 C.F.R. § 1.213(a); MPEP § 1122; EPC art. 93(1); PCT art. 21(2)(a).

21. EPC art. 93(1)(a) (European patent applications published as soon as possible after eighteen months from the date of filing or, where priority is claimed, the priority date); Zhuanli Fa (专利法) art. 34 (China) (CNIPA publishes an application promptly upon expiry of eighteen months from the filing date, once preliminary examination finds it conforms to the Law). Neither system provides an applicant-initiated opt-out comparable to 35 U.S.C. § 122(b)(2)(B)(i).

22. 35 U.S.C. § 122(b)(2)(B)(i); 37 C.F.R. § 1.213(a); *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 484–91 (1974) (trade secret and patent protection coexist); see infra Sections VI–VIII.

23. EPC art. 54(2) (state of the art comprises everything made available to the public before the date of filing); 35 U.S.C. § 102(a)(1) (prior art includes any printed publication before the effective filing date); 18 U.S.C. § 1839(3)(B) (information qualifies as a trade secret only if it is not generally known or readily ascertainable through proper means).

24. 37 C.F.R. § 1.54(b) (filing receipt); 37 C.F.R. § 1.19(b)(1) (certified copies of applications as filed); 35 U.S.C. § 151(a) and 37 C.F.R. § 1.311 (notice of allowance); 35 U.S.C. § 122(a) and 37 C.F.R. § 1.14 (applications kept in confidence); 35 U.S.C. § 261 and 37 C.F.R. § 1.12 (recordation of assignments; records relating to unpublished applications not open to public inspection); 18 U.S.C. § 1839(3)(A) (reasonable measures to keep information secret).

25. 35 U.S.C. § 122(b)(2)(B)(i), (iii); 37 C.F.R. § 1.213(a), (c) (only a foreign or international filing requiring eighteen-month publication affects the request).

26. 35 U.S.C. §§ 120, 122(b)(2)(B)(i), 132(b), 151; 37 C.F.R. §§ 1.114, 1.213, 1.313(c) (withdrawal from issue upon filing a request for continued examination); see infra Section VIII.C.

27. 37 C.F.R. § 1.152 and MPEP § 1503.02 (design drawings must show the complete appearance of the design); MPEP § 1504.01(a) (computer-generated icons and interfaces); Supplemental Guidance for Examination of Design Patent Applications Related to Computer-Generated Interfaces and Icons, 91 Fed. Reg. 12,394 (Mar. 13, 2026) [hereinafter 2026 GUI Guidance]; 35 U.S.C. §§ 120, 121; MPEP § 1504.20; *Racing Strollers, Inc. v. TRI Indus., Inc.*, 878 F.2d 1418, 1420–21 (Fed. Cir. 1989) (en banc) (design application may claim the benefit of an earlier utility application's filing date); *In re Daniels*, 144 F.3d 1452, 1456–57 (Fed. Cir. 1998).

28. 35 U.S.C. § 173; Patent Law Treaties Implementation Act of 2012, Pub. L. No. 112-211, §§ 102(7), 103, 126 Stat. 1527 [hereinafter PLTIA] (fifteen-year design term from grant for applications filed on or after May 13, 2015); 35 U.S.C. §

154(a)(2) (utility term ends twenty years from the earliest nonprovisional filing date).

29. Compare 35 U.S.C. §§ 120, 121, 173 (design application may claim the benefit of a pending utility application, with term running from grant), with EPC art. 76(1) (European divisional applications may only be patent applications), and Council Regulation (EC) No 6/2002 of 12 December 2001 on Community Designs arts. 7(2), 12, 2002 O.J. (L 3) 1, as amended by Regulation (EU) 2024/2822, 2024 O.J. (L 2822) [hereinafter EU Design Regulation] (registered design must be filed within twelve months of the designer's own disclosure; term measured from filing).

30. 35 U.S.C. §§ 122(b)(2)(B)(i), 173; compare EPC art. 93(1) and PCT art. 21(2)(a) (mandatory eighteen-month publication), with Geneva Act of the Hague Agreement Concerning the International Registration of Industrial Designs arts. 11, 17, July 2, 1999, S. Treaty Doc. No. 109-21 [hereinafter Hague Agreement (Geneva Act)] (publication may be deferred for at most thirty months; term measured from the date of international registration).

31. 35 U.S.C. § 102(a)(1), (b)(1); EPC arts. 54(2), 55(1); see supra notes 12–13.

32. Paris Convention for the Protection of Industrial Property arts. 4(A)(1), 4(B), 4(C)(1), Mar. 20, 1883, as revised at Stockholm July 14, 1967, 21 U.S.T. 1583, 828 U.N.T.S. 305 [hereinafter Paris Convention]; 35 U.S.C. § 119(a); Agreement on Trade-Related Aspects of Intellectual Property Rights art. 2(1), Apr. 15, 1994, 1869 U.N.T.S. 299; Patent Act art. 28 (Taiwan) (priority based on first filings in WTO members, claimable within twelve months); WIPO, *PCT Contracting States*, https://www.wipo.int/pct/en/pct_contracting_states.html (last visited Nov. 2026) (Taiwan not a contracting state).

33. PCT arts. 22(1), 39(1)(a); EPC r. 159(1) (thirty-one months for entry into the European phase); WIPO, *PCT Applicant's Guide: National Phase*, https://www.wipo.int/pct/en/guide/ (last visited Nov. 2026).

34. PCT art. 21(2)(a); EPC arts. 54(2), 93(1)(a); Zhuanli Fa (专利法) art. 34 (China); Paris Convention art. 4(B); see also 35 U.S.C. § 122(b)(1)(A).

35. EPC art. 86(1); EPC r. 51(1); Patentgesetz [PatG] [Patent Act] § 17(1) (Ger.) (annual fees from the third year after filing, including for pending applications); Patent Act, R.S.C. 1985, c. P-4, s. 27.1 (Can.) (maintenance fees to keep applications in good standing); 35 U.S.C. § 41(b)(1).

36. U.S. Pat. & Trademark Off., *Patents Data, at a Glance*, https://www.uspto.gov/dashboards/patents/ (last visited Nov. 2026) (average total pendency of roughly twenty-eight months in early 2026); Eur. Patent Off., *Annual Review 2025*, https://www.epo.org/en/about-us/transparency-portal/general/annual-review-2025/executive-summary (last visited Nov. 2026) (mean processing time from filing to grant of 36.5 months for standard cases in 2025, with about one quarter of such cases exceeding forty-eight months).

37. See van Pottelsberghe de la Potterie & François, supra note 4 (translation, validation, and transaction costs make European protection highly fragmented and expensive); see also supra note 5.

38. Paris Convention art. 4(C)(1); PCT arts. 21(2)(a), 22(1), 39(1)(a); EPC arts. 54(2), 93(1).

39. See Mark A. Lemley, *Rational Ignorance at the Patent Office*, 95 Nw. U. L. Rev. 1495 (2001) (few patents are ever licensed or litigated, and their value is largely unknowable at filing); Kimberly A. Moore, *Worthless Patents*, 20 Berkeley Tech. L.J. 1521 (2005) (more than half of U.S. patents expire for failure to pay maintenance fees).

40. *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1002 (1984) (property interest in a trade secret is extinguished once the information is disclosed to others not obligated to protect it); *Kewanee*, 416 U.S. at 475–76; 18 U.S.C. § 1839(3); 35 U.S.C. § 102(b)(1).

41. 35 U.S.C. § 273 (defense based on prior commercial use, limited to commercial use in the United States); Bundesgesetz über die Erfindungspatente [Patentgesetz, PatG] [Federal Act on Patents for Inventions] June 25, 1954, SR 232.14, art. 35 (Switz.); Patentgesetz [PatG] [Patent Act] § 12 (Ger.); Code de la propriété intellectuelle [C. Prop. Intell.] art. L.613-7 (Fr.) (personal right of prior possession). Each of these rights is territorial and personal; none prevents a third party from obtaining a patent elsewhere.

42. 18 U.S.C. § 1839(3) (trade secrets include all forms of technical and engineering information, including programs and codes, that derive independent economic value from secrecy); Defend Trade Secrets Act of 2016, Pub. L. No. 114-153, 130 Stat. 376; Unif. Trade Secrets Act § 1(4) (Unif. L. Comm'n 1985); Directive (EU) 2016/943 of the European Parliament and of the Council of 8 June 2016 on the Protection of Undisclosed Know-How and Business Information (Trade Secrets) Against Their Unlawful Acquisition, Use and Disclosure, art. 2(1), 2016 O.J. (L 157) 1 [hereinafter EU Trade Secrets Directive]; see *Kewanee*, 416 U.S. at 476 (protection lasts as long as secrecy is maintained); 18 U.S.C. § 1839(6)(B) (reverse engineering is not improper means).

43. *Ruckelshaus*, 467 U.S. at 1002; *Kewanee*, 416 U.S. at 476 (trade secret law does not protect against discovery by fair and honest means, such as independent invention or reverse engineering); 18 U.S.C. § 1839(6)(B); 35 U.S.C. § 102(a)(1), (b)(1)(A).

44. See *Kewanee*, 416 U.S. at 489–91 (discussing the inventor's choice between patent and trade secret protection); *Metallizing Eng'g Co. v. Kenyon Bearing & Auto Parts Co.*, 153 F.2d 516, 520 (2d Cir. 1946) (inventor's secret commercial exploitation forfeits the right to a patent); 35 U.S.C. § 122(b)(1)(A); PCT art. 21(2)(a).

45. See *InteliClear, LLC v. ETC Glob. Holdings, Inc.*, 978 F.3d 653, 658 (9th Cir. 2020) (trade secret plaintiff must identify its trade secrets with sufficient

particularity); Cal. Civ. Proc. Code § 2019.210; 18 U.S.C. §§ 1836(b), 1839(3)(A).

46. *Helsinn*, 586 U.S. at 131–32 (confidential sale may trigger the on-sale bar); *Pfaff*, 525 U.S. at 67–68; 35 U.S.C. § 102(a)(1).

47. 35 U.S.C. § 102(b)(1)(A); *Ruckelshaus*, 467 U.S. at 1002 (disclosure extinguishes the property interest in a trade secret).

48. See supra notes 40, 44.

49. 35 U.S.C. § 122(b)(2)(B)(i); 37 C.F.R. § 1.213; *Kewanee*, 416 U.S. at 484, 493 (trade secret law and patent law coexist).

50. 35 U.S.C. §§ 111(b), 119(e)(1) (provisional applications); 35 U.S.C. § 122(b)(2)(B)(i) (non-publication requests); 35 U.S.C. §§ 121, 171, 173 (divisional design applications); see infra Sections VI–IX.

51. 35 U.S.C. §§ 111(b), 119(e)(1), 122(b)(2)(A)(iii) (provisional applications are not published); 37 C.F.R. § 1.53(c); 35 U.S.C. § 292(a) (marking "patent pending" is unlawful only when no application has been made or none is pending); Paris Convention art. 4(A)(2)–(3).

52. 35 U.S.C. § 111(b)(5) (provisional application regarded as abandoned twelve months after filing and not subject to revival); 35 U.S.C. §§ 119(e)(1), 122(a); 37 C.F.R. §§ 1.14, 1.211(b); Paris Convention art. 4(C)(4) (subsequent application may be regarded as the first application if the earlier one was withdrawn, abandoned, or refused without being open to public inspection, without leaving rights outstanding, and without having served as a basis for priority); EPC art. 87(4).

53. 35 U.S.C. § 122(a), (b)(2)(A)(iii) (provisional applications are kept in confidence and never published); 37 C.F.R. § 1.14; 18 U.S.C. § 1839(3)(A).

54. 35 U.S.C. § 292(a) (marking "patent pending" is prohibited only when no application has been made or none is pending); 35 U.S.C. § 111(b) (a provisional application is an application for patent).

55. Paris Convention art. 4(C)(1); PCT arts. 8(1), 22(1), 39(1)(a); 35 U.S.C. § 119(e)(1); 37 C.F.R. § 1.53(c)(3) (conversion of a provisional to a nonprovisional application).

56. 35 U.S.C. § 119(e)(1); 37 C.F.R. § 1.78(a)(1), (a)(4); Paris Convention art. 4(C)(1); PCT art. 8(1).

57. 35 U.S.C. § 119(e)(1); 35 U.S.C. § 154(a)(2)–(3) (utility term measured from the earliest nonprovisional filing date, without regard to provisional filings); Paris Convention art. 4(C)(1), (4); EPC art. 87(4); Eur. Patent Off., *Guidelines for Examination in the European Patent Office* (2026 ed.) [hereinafter EPO Guidelines] pt. F, ch. VI, § 1.4.1 (subsequent application considered as first application).

58. *Helsinn*, 586 U.S. at 131–32; *Pfaff*, 525 U.S. at 67–68; *Medicines Co. v. Hospira, Inc.*, 827 F.3d 1363 (Fed. Cir. 2016) (en banc) (contract-manufacturing services

were not a commercial sale of the invention); 35 U.S.C. § 119(e)(1); Paris Convention art. 4(B); cf. EPC art. 54(2) (only information made available to the public forms part of the state of the art).

59. 35 U.S.C. §§ 111(b)(5), 119(e)(1); 37 C.F.R. § 1.78(a); Paris Convention art. 4(C)(1).

60. 35 U.S.C. §§ 111(a), 122(b)(2)(B)(i); 37 C.F.R. § 1.213(a); MPEP § 1122; see supra note 20.

61. 35 U.S.C. § 151; 37 C.F.R. §§ 1.311, 1.316 (application abandoned if the issue fee is not paid).

62. 35 U.S.C. §§ 120, 132(b); 37 C.F.R. §§ 1.114, 1.313(c) (request for continued examination after allowance; withdrawal from issue).

63. 35 U.S.C. § 122(a); 37 C.F.R. § 1.14(a) (status and contents of unpublished applications not available to the public); Lemley & Moore, supra note 18.

64. 35 U.S.C. § 122(b)(2)(B)(ii)–(iii) and 37 C.F.R. § 1.213(b)–(c) (only a foreign or international filing, not other disclosure, triggers the duty to notify the USPTO); 35 U.S.C. § 102(a)(1) (a publication by the applicant becomes prior art against later filings by others); EPC art. 54(2).

65. 35 U.S.C. § 122(b)(2)(B)(i); 37 C.F.R. § 1.213(a) (request must be submitted with the application upon filing).

66. 35 U.S.C. § 122(b)(2)(B)(iii) (notice within forty-five days of a foreign or international filing; failure results in abandonment); 37 C.F.R. § 1.213(c); 37 C.F.R. § 1.137(a) (revival for unintentional delay); MPEP § 1122.

67. 35 U.S.C. § 122(a), (b)(2)(B)(i)–(ii) (request effective until rescinded); 37 C.F.R. §§ 1.14, 1.213(b).

68. 35 U.S.C. §§ 122(a), (b)(2)(B)(ii), 151(a); 37 C.F.R. §§ 1.14, 1.114, 1.311 (notice of allowance precedes issue); 37 C.F.R. § 1.138(c) (express abandonment to avoid publication).

69. 35 U.S.C. §§ 120, 122(b)(2)(B)(i); 37 C.F.R. § 1.53(b); MPEP § 211 (continuing applications, including continuations-in-part); 18 U.S.C. § 1839(3); 35 U.S.C. § 102(a) (prior art measured as of the effective filing date).

70. 35 U.S.C. § 102(a)(1)–(2), (d) (an earlier-filed foreign application counts as prior art as of its priority date only through a U.S. patent, published U.S. application, or published PCT application designating the United States that is entitled to claim its priority); 35 U.S.C. § 374; 35 U.S.C. § 122(b)(2)(B)(iii); 37 C.F.R. § 1.213(c); cf. 35 U.S.C. § 273 (prior commercial use defense).

71. Paris Convention art. 4(C)(4); EPC art. 87(4); EPO Guidelines, supra note 57, pt. F, ch. VI, § 1.4.1; 35 U.S.C. §§ 119(e)(1), 120; 37 C.F.R. § 1.78(a)(4), (c) (benefit claim to a provisional due within the later of four months from filing or sixteen months from the provisional's filing date; delayed claims accepted on petition for unintentional delay); 35 U.S.C. § 102(b)(1). We have found no reported decision addressing a late-added priority claim of this kind in an application that later

serves as a priority basis abroad; the tactic should therefore be regarded as untested.

72. 35 U.S.C. § 122(b)(2)(B)(ii)–(iii); 37 C.F.R. §§ 1.211(a), 1.213(b)–(c) (after a foreign filing the request must be rescinded or the USPTO notified, and the application is then published); EPC art. 54(2) (an unpublished U.S. application is not part of the state of the art).

73. Paris Convention art. 4(C)(1), (4); EPC art. 87(1), (4); 35 U.S.C. § 119(e)(1); 37 C.F.R. § 1.138(c) (express abandonment to avoid publication).

74. 35 U.S.C. § 122(b)(2)(B)(ii)–(iii), (v); 37 C.F.R. §§ 1.213(b)–(c), 1.217 (redacted publication limited to matter not contained in the corresponding foreign filing).

75. 35 U.S.C. § 122(b)(2)(B)(v); 37 C.F.R. § 1.217.

76. See 35 U.S.C. §§ 102(a)(1), 122(b)(2)(B)(iii); 37 C.F.R. § 1.213(c); *Helsinn*, 586 U.S. at 131–32; 18 U.S.C. § 1839(3)(A).

77. 35 U.S.C. § 122(b)(2)(B)(i), (iii); 37 C.F.R. § 1.213(a), (c); *Helsinn*, 586 U.S. at 131–32; *Pfaff*, 525 U.S. at 67; 35 U.S.C. §§ 120, 121; 37 C.F.R. § 1.78.

78. Unif. Trade Secrets Act § 1(4)(ii); EU Trade Secrets Directive, supra note 42, art. 2(1)(c).

79. 18 U.S.C. § 1839(3)(A).

80. 35 U.S.C. §§ 112(a), 119(a), 120; Paris Convention art. 4(C)(1), (H) (priority may not be refused because elements are not claimed, provided the application documents as a whole specifically disclose them); EPC art. 87(1); Case G 2/98, *Requirement for Claiming Priority of the "Same Invention"*, 2001 O.J. EPO 413 (Enlarged Bd. of Appeal) (priority requires that the claimed subject matter be directly and unambiguously derivable from the previous application as a whole).

81. 35 U.S.C. §§ 120, 121, 132(b), 154(a)(2); 37 C.F.R. §§ 1.53(b), 1.78, 1.114; *Godfrey v. Eames*, 68 U.S. (1 Wall.) 317, 325–26 (1864) (recognizing continuing applications); cf. EPC arts. 76(1), 93(1) (European divisional applications must be filed while the parent is pending and are published in due course).

82. Compare 35 U.S.C. § 112(a), and *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (written description satisfied where the disclosure reasonably conveys possession), with EPC art. 123(2), Case G 2/10, *Disclaimer/SCRIPPS*, 2012 O.J. EPO 376 (Enlarged Bd. of Appeal) (amendments must be directly and unambiguously derivable from the application as filed), and EPO Guidelines, supra note 57, pt. H, ch. V, § 3.2.1 (intermediate generalisations).

83. 35 U.S.C. § 122(b)(2)(B)(i), (iii); 37 C.F.R. § 1.213; EPC art. 54(2); Paris Convention art. 4(C)(4); 18 U.S.C. § 1839(3).

84. 35 U.S.C. §§ 100(i)(1)(B) (effective filing date includes the benefit date of an earlier application), 120, 121, 171(b), 173; 35 U.S.C. § 154(a)(2); MPEP § 1504.20; *Racing Strollers*, 878 F.2d at 1420–21.

85. 35 U.S.C. §§ 120, 121, 171; MPEP §§ 1504.01(a), 1504.10, 1504.20; 2026 GUI Guidance, supra note 27 (computer-generated interfaces and icons, including GUIs, eligible for design protection); *Apple Inc. v. Samsung Elecs. Co.*, 786 F.3d 983 (Fed. Cir. 2015) (affirming infringement of a design patent claiming a GUI layout), rev'd on other grounds, 580 U.S. 53 (2016).

86. Compare 35 U.S.C. §§ 120, 121, 122(b)(2)(A)(iv), 173, with EU Design Regulation, supra note 29, arts. 12, 50 (term measured from filing; publication deferral limited to thirty months), and Hague Agreement (Geneva Act), supra note 30, arts. 11, 17.

87. 35 U.S.C. § 122(a), (b)(2)(A)(iv) (design applications excluded from pre-grant publication); 37 C.F.R. § 1.155 (expedited examination of design applications); MPEP § 1504.30.

88. MPEP § 1504.20 (continuation and divisional design applications).

89. 35 U.S.C. §§ 120, 121; MPEP § 1504.20; *Racing Strollers*, 878 F.2d at 1420–21; *In re Owens*, 710 F.3d 1362, 1366–68 (Fed. Cir. 2013) (continuing design application must find written-description support in the parent's drawings).

90. 35 U.S.C. § 173; PLTIA, supra note 28; cf. EU Design Regulation, supra note 29, art. 12 (five-year terms from filing, renewable up to twenty-five years).

91. 35 U.S.C. § 122(b)(1)(A), (b)(2)(A)(iv), (b)(2)(B)(i); 37 C.F.R. § 1.211.

92. 35 U.S.C. § 173.

93. 35 U.S.C. §§ 119(a), 120, 172, 363, 365(c); MPEP § 1504.10 (where a design application claims benefit under § 120 of an intermediate utility application that claims foreign priority, the utility application must have been filed within six months of the foreign application for the design to obtain the foreign filing date); 37 C.F.R. § 1.152 and MPEP § 1503.02 (design drawings must contain a sufficient number of views to disclose the complete appearance of the design).

94. 35 U.S.C. §§ 120, 173; MPEP §§ 1504.10, 1504.20; *Racing Strollers*, 878 F.2d at 1420–21.

95. 35 U.S.C. §§ 41(b), 173 (no maintenance fees for design patents); 37 C.F.R. § 1.155.

96. Paris Convention art. 4(C)(1) (six-month priority period for industrial designs); 35 U.S.C. § 172; Hague Agreement (Geneva Act), supra note 30; cf. EU Design Regulation, supra note 29, arts. 5, 7(2) (novelty; twelve-month grace period for the designer's own disclosures).

97. 35 U.S.C. §§ 283, 284, 289; *Samsung Elecs. Co. v. Apple Inc.*, 580 U.S. 53 (2016) (total-profit remedy for design patent infringement); Fed. R. Civ. P. 65(b); see generally Eric Goldman, *A SAD Scheme of Abusive Intellectual Property Litigation*, 123 Colum. L. Rev. F. 183 (2023) (describing mass-defendant "Schedule A" actions against online-marketplace sellers, ex parte restraining orders, and marketplace account freezes, and criticizing their abuses).

98. 35 U.S.C. §§ 154(a)(2), 173.

99. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208 (2014); 2024 Guidance Update on Patent Subject Matter Eligibility, Including on Artificial Intelligence, 89 Fed. Reg. 58,128 (July 17, 2024); *Egyptian Goddess, Inc. v. Swisa, Inc.*, 543 F.3d 665, 678 (Fed. Cir. 2008) (en banc) (ordinary-observer test for design infringement); *LKQ Corp. v. GM Glob. Tech. Operations LLC*, 102 F.4th 1280 (Fed. Cir. 2024) (en banc) (design obviousness).

100. 35 U.S.C. §§ 120, 121, 122(b)(2)(B)(i), 132(b), 154(a)(2); 37 C.F.R. §§ 1.114, 1.213.

101. 35 U.S.C. §§ 119(e)(1), 120, 121, 122(b)(2)(A)(iv), 122(b)(2)(B)(i), 173; 37 C.F.R. § 1.213.

102. 35 U.S.C. §§ 120 (copendency requirement), 122(b)(2)(A)(iv), 172; Paris Convention art. 4(C)(1); *Racing Strollers*, 878 F.2d at 1420–21.

103. 35 U.S.C. §§ 120, 121, 132(b), 154(a)(2), 173; 37 C.F.R. §§ 1.114, 1.155; Paris Convention art. 4(C)(1); EU Design Regulation, supra note 29, art. 7(2).

104. 35 U.S.C. § 122(b)(2)(B)(i); 37 C.F.R. § 1.213(a) (request must be submitted with the application upon filing); 35 U.S.C. § 120 (continuing application must be filed before patenting or abandonment of the parent); MPEP §§ 211.01(b), 1504.20; 37 C.F.R. § 1.114.

105. 35 U.S.C. § 122(a), (b)(2)(A)(iv) (unpublished utility applications and design applications are not open to the public before grant); 35 U.S.C. §§ 154(a)(1), 173, 271(a) (enforceable rights arise on grant).

106. 35 U.S.C. §§ 101, 171 (utility and design patents); 18 U.S.C. § 1836 (trade secret misappropriation); 35 U.S.C. § 41(b)(1) (utility maintenance fees due only after grant).

107. 37 C.F.R. § 1.155 (expedited examination of design applications); MPEP § 1504.30; 35 U.S.C. §§ 284 (damages adequate to compensate for infringement, including lost profits), 289 (design-patent infringer liable to the extent of its total profit).

108. 35 U.S.C. § 173 (fifteen-year term from grant for design patents issuing from applications filed on or after May 13, 2015); cf. 35 U.S.C. § 154(a)(2) (utility term ends twenty years from the earliest U.S. nonprovisional filing date to which benefit is claimed).

109. 35 U.S.C. §§ 283 (injunctions), 284, 289; 15 U.S.C. §§ 1114, 1116(a), 1117(a) (trademark infringement, injunctive relief, and recovery of profits and damages); Fed. R. Civ. P. 64, 65 (provisional remedies, including temporary restraining orders and preliminary injunctions).

110. Identifying details have been modified to preserve client confidentiality.

111. 35 U.S.C. § 111(b)(5) (provisional application abandoned twelve months after filing); 35 U.S.C. § 119(e)(1); Paris Convention art. 4(C)(4) (a later application may be treated as the first application for priority purposes only if the earlier one was withdrawn, abandoned, or refused before being laid open to public

inspection, without leaving rights outstanding, and without having served as a basis for priority); EPO Guidelines, supra note 57, pt. F, ch. VI, § 1.4.1.

112. 35 U.S.C. § 132(b); 37 C.F.R. § 1.114(a)(1) (request for continued examination may be filed after allowance, before payment of the issue fee); 35 U.S.C. § 151 (application abandoned if the issue fee is not paid); 35 U.S.C. § 122(a), (b)(2)(B)(i).

113. Hague Agreement (Geneva Act), supra note 30, arts. 5, 6 (contents of international design application; priority); 35 U.S.C. §§ 381–390 (international design applications); PCT art. 8(1); PCT r. 4.10 (priority claims); Paris Convention art. 4(C)(1) (six-month priority period for industrial designs).

114. 35 U.S.C. § 102(b)(2)(C), (c) (joint research agreements); 35 U.S.C. § 262 (absent agreement, each joint owner may exploit the patent without the consent of the others); *Helsinn*, 586 U.S. at 131–32; 35 U.S.C. § 122(b)(2)(B)(iii).

115. 35 U.S.C. § 102(a)(1)–(2), (b)(1)(B); *Helsinn*, 586 U.S. at 131–32; 37 C.F.R. § 1.213(c); see also 35 U.S.C. § 135 (derivation proceedings).

116. See 35 U.S.C. §§ 102(b)(2)(C), (c) (joint research agreements), 261 (assignments), 262 (joint owners); infra notes 117–121 (authority for each provision).

117. See *Bd. of Trs. of Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc.*, 563 U.S. 776 (2011) (rights in an invention vest initially in the inventor and pass only by effective assignment); *FilmTec Corp. v. Allied-Signal Inc.*, 939 F.2d 1568, 1572–73 (Fed. Cir. 1991) (present-tense assignment of future inventions transfers legal title automatically when the invention is made); 35 U.S.C. §§ 135 (derivation proceedings), 261 (assignments).

118. *Lear, Inc. v. Adkins*, 395 U.S. 653, 670–71 (1969) (federal patent policy limits enforcement of licensee no-challenge obligations); *Flex-Foot, Inc. v. CRP, Inc.*, 238 F.3d 1362, 1368–70 (Fed. Cir. 2001) (enforcing a no-challenge clause in a settlement agreement); *Baseload Energy, Inc. v. Roberts*, 619 F.3d 1357 (Fed. Cir. 2010) (such a clause must be clear and unambiguous); Commission Regulation (EU) No 316/2014, art. 5(1)(b), 2014 O.J. (L 93) 17 (no-challenge clauses excluded from the technology-transfer block exemption). A no-challenge clause binds only the contracting party; third parties remain free to assert the on-sale bar.

119. 18 U.S.C. § 1839(3)(A) (reasonable measures to keep information secret); EU Trade Secrets Directive, supra note 42, art. 2(1)(c); cf. *Helsinn*, 586 U.S. at 131–32 (confidentiality does not take a sale outside the on-sale bar).

120. *Grp. One, Ltd. v. Hallmark Cards, Inc.*, 254 F.3d 1041, 1047–48 (Fed. Cir. 2001) (whether a communication is a commercial offer for sale is judged under general contract law); *Merck & Cie v. Watson Lab'ys, Inc.*, 822 F.3d 1347 (Fed. Cir. 2016) (agreement with a distributor was a commercial offer for sale); *Hamilton Beach Brands, Inc. v. Sunbeam Prods., Inc.*, 726 F.3d 1370 (Fed. Cir. 2013) (commercial offer for sale arose from the patentee's dealings with its own contract manufacturer). Courts look to substance rather than labels, so a non-characterization clause is at most evidence of the parties' intent.

121. Restatement (Second) of Contracts § 356(1) (Am. L. Inst. 1981) (liquidated damages enforceable only in an amount reasonable in light of anticipated or actual loss; unreasonably large amounts unenforceable as penalties); U.C.C. § 2-718(1) (Am. L. Inst. & Unif. L. Comm'n); Obligationenrecht [OR] [Code of Obligations] arts. 160–163 (Switz.) (contractual penalties; judicial reduction of excessive penalties under art. 163(3)).

122. See supra note 116; *Medicines Co.*, 827 F.3d 1363; 35 U.S.C. § 102(b)(2)(C), (c).

123. 35 U.S.C. §§ 120, 121, 132(b), 154(a)(2); 37 C.F.R. §§ 1.53(b), 1.114.

124. 35 U.S.C. §§ 121, 173; PLTIA, supra note 28; MPEP § 1504.20; 35 U.S.C. § 289 (infringer's total profit recoverable for design patent infringement); *Samsung Elecs.*, 580 U.S. 53.

125. See *Hyatt v. Hirshfeld*, 998 F.3d 1347, 1359–62 (Fed. Cir. 2021); *Personalized Media Commc'ns, LLC v. Apple Inc.*, 57 F.4th 1346 (Fed. Cir. 2023) (affirming unenforceability for prosecution laches); *Google LLC v. Sonos, Inc.*, No. 2024-1097, 2025 WL 2473258 (Fed. Cir. Aug. 28, 2025) (nonprecedential) (reversing a prosecution-laches holding for want of prejudice where the specification had been published years earlier); *Cancer Rsch. Tech. Ltd. v. Barr Lab'ys, Inc.*, 625 F.3d 724, 728–29 (Fed. Cir. 2010) (prosecution laches requires unreasonable and inexcusable delay and resulting prejudice); see infra Section XIV.C.

126. Uruguay Round Agreements Act § 532(a), supra note 19; 35 U.S.C. § 154(a)(2); *Symbol Techs., Inc. v. Lemelson Med., Educ. & Rsch. Found., LP*, 422 F.3d 1378, 1385–86 (Fed. Cir. 2005) (affirming unenforceability of Lemelson patents for prosecution laches); *Symbol Techs., Inc. v. Lemelson Med., Educ. & Rsch. Found., LP*, 277 F.3d 1361 (Fed. Cir. 2002); Lemley & Moore, supra note 18; *Google LLC v. Sonos*, supra note 125.

127. 35 U.S.C. § 286.

128. 35 U.S.C. §§ 154(d) (provisional rights only from publication), 271(a), 286; see *Gayler v. Wilder*, 51 U.S. (10 How.) 477, 493 (1850) (no exclusive right enforceable before the patent issues).

129. *SCA Hygiene*, 580 U.S. at 334–46 (laches cannot bar damages for infringement occurring within the six-year period of 35 U.S.C. § 286).

130. See supra note 127 (citing 35 U.S.C. § 286).

131. See *Kewanee*, 416 U.S. at 484–93; 35 U.S.C. § 122(b)(2)(B)(i); cf. *A.C. Aukerman Co. v. R.L. Chaides Constr. Co.*, 960 F.2d 1020, 1041–43 (Fed. Cir. 1992) (en banc) (equitable estoppel requires misleading conduct, reliance, and material prejudice).

132. *Keystone Driller Co. v. Gen. Excavator Co.*, 290 U.S. 240, 245 (1933) (unclean hands requires misconduct with an immediate and necessary relation to the equity sought); *Gilead Scis., Inc. v. Merck & Co.*, 888 F.3d 1231, 1239–40 (Fed. Cir. 2018); *Aukerman*, 960 F.2d at 1028, 1041–43 (equitable estoppel requires misleading conduct, reliance, and material prejudice); *Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276, 1287–90 (Fed. Cir. 2011) (en banc).

133. *Kewanee*, 416 U.S. at 484.

134. See Wesley M. Cohen, Richard R. Nelson & John P. Walsh, *Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent (or Not)* (Nat'l Bureau of Econ. Rsch., Working Paper No. 7552, 2000) (firms rate secrecy as a more effective means of appropriating returns than patents in most industries); Eur. Union Intell. Prop. Off., *Protecting Innovation Through Trade Secrets and Patents: Determinants for European Union Firms* (2017); Lemley & Moore, supra note 18.

135. 35 U.S.C. §§ 122(b), 154(a)(2), (b), (d); Uruguay Round Agreements Act § 532(a), supra note 19; AIPA, supra note 19; *Hyatt*, 998 F.3d at 1352 (pre-1995 term structure and the "GATT Bubble").

136. See supra notes 127–129.

137. *Keystone Driller*, 290 U.S. at 245; *Gilead*, 888 F.3d at 1239–40; *Aukerman*, 960 F.2d at 1041–43; *Therasense*, 649 F.3d at 1287–90.

138. See supra notes 127–129.

139. See *Kewanee*, 416 U.S. at 484.

140. See supra notes 126, 135; Uruguay Round Agreements Act § 532(a), supra note 19; AIPA, supra note 19; *Symbol Techs.*, 422 F.3d at 1385–86.

141. See supra notes 131, 137.

142. See supra note 11 (citing 35 U.S.C. § 122(b)(2)(B)(i); 37 C.F.R. § 1.213(a)).

143. *Helsinn*, 586 U.S. at 131–32 (secret sale to a third party may place the invention "on sale").

144. See supra note 11 (citing 35 U.S.C. § 122(b)(2)(B)(i); 37 C.F.R. § 1.213(a)).

145. See *Kewanee*, 416 U.S. at 484.