was so great that there was a serious risk that the system might forget the steady, unheralded careers of many small and medium sized companies that depend on patents to gain a foothold in a market, fend off larger rivals, or attract investment capital. See, e.g., Stuart J.H. Graham et al., High Technology Entrepreneurs and the Patent System: Results of the 2008 Berkeley Patent Survey, 24 BERKELEY TECH. L.J. 1255 (2009); Joan Farre-Mensa, Deepak Hegde & Alexander Ljungqvist, The Bright Side of Patents (January 26, 2016), USPTO Economic Working Paper No. 2015-5, available at SSRN: http://ssrn.com/abstract=2704028 (patent approvals help startups create jobs, grow their sales, innovate, and reward their investors). That would be a shame. Because these innovative people, and the companies they found, are the heart of what makes the patent system valuable. They are why, despite abuses and headaches, the patent system is worth fighting for. And why super-stringent requirements for patentability and other reforms must be watched carefully, lest they go too far in the direction of invalidating patents on socially useful innovations. See, e.g., Alberto Galasso & Mark A. Schankerman, Patent Rights and Innovation by Small and Large Firms, Working Paper, Nov. 20, 2015, avail. at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2694725 (showing that, when the Federal Circuit invalidates a core patent held by a small company, it reduces patenting over the next five years by 50%, while invalidations cause large companies to simply change their areas of research). As with other chapters of abusive litigation in the history of patent law, there is hope that the right policy balance can be found. See Christopher Beauchamp, The First Patent Litigation Explosion, 125 YALE L.J. 848 (2016). Litigation for its own sake can be discouraged; and patents for the sake of real, honest innovations can and should be preserved.

Whatever your personal view on these developments, it is apparent that the great changes that continue to sweep through the system make patent law a vibrant field for study and practice. With that in mind, we turn now to some basics, starting with what a patent looks like and how to read it.

B. The Architecture of a Modern Patent

As the next step in introducing the field of patent law, we will briefly study a modern United States patent document. Our purpose here is threefold. First and most obviously, practitioners of patent law must be able to read a patent and to understand the function of the various parts of the document. Second, the final issued patent is largely identical to the patent application drafted by inventor's attorney or agent. While the Patent and Trademark Office (PTO) is responsible for adding a few technical portions to the final patent (for example, it assigns the patent number and lists the prior art documents considered by the examiner), the predominant function of the PTO during the application process is to determine whether the draft patent as submitted by the applicant would constitute a valid patent. Thus, a study of an issued patent is also an introduction to the patent application.

Third and finally, just as the architecture of public buildings can provide insight into the society that constructed them, so too the structure of the patent document
provides insight into the philosophy of modern patent law. For example, one feature already mentioned—the private drafting of the patent instrument—reveals a striking and somewhat paradoxical feature of the patent system: Although the patent system is ultimately a system of government economic regulation, it is also a system based primarily on private rights and private initiative. The system reflects a cautious optimism in government regulation, qualified by healthy realism about the fallibility of government institutions. In short, it reflects a deeply ambivalent view toward government. Other features of modern patent philosophy will become evident in the study of the patent document.

In the course of this study, and throughout this book, we will make frequent reference to the “bible” of patent practice, The Manual of Patent Examining Procedure, affectionately known to U.S. patent practitioners as the “MPEP.” This is an extremely valuable (if somewhat jumbled) source for information on the intricacies of patent practice. The PTO keeps the most current version available on its website; you should consult it as needed. See The Manual of Patent Examining Procedure (9th ed. 2015) (“MPEP”), available at http://www.uspto.gov/web/offices/pac/mpep/. Other important web-based resources are also introduced below.

Structures in the Patent Document

On the following pages, we have reproduced a complete U.S. patent, minus only a few drawings. Study this document carefully as you read the following description of its features.

(1) INID Codes. An obvious feature of the patent document is the inclusion of various numbers in brackets such as “[19],” “[11]” and “[45]” on the first page of the document. These numbers are known as INID Codes (the acronym stands for “Internationally agreed Numbers for the Identification of bibliographic Data”). They are an international set of codes for identifying information contained on the first page of a patent. For example, the codes “[19],” “[11]” and “[45]” correspond to, respectively, the authority issuing the patent (here, the United States), the patent number (“5,205,473”), and the date on which the patent was publicly issued (“Apr. 27, 1993”).

1. This ambivalence can also be seen in the history of patent law. For example, the Statute of Monopolies, the cornerstone of the British patent system for over two hundred years, was primarily directed at ending royal grants of exclusive privilege. Similarly, the Patent Act of 1836, which created a system of administrative examination in the United States, granted a very limited discretion to the agency and included checks on the agency so that the administrative process itself “would be regulated and guarded, to prevent injustice through mistake of judgment or otherwise.” S. Rep. No. 338, 24 Cong., 2d Sess. 4 (1836). See also John F. Duffy, The FCC and the Patent System: Progressive Ideals, Jacksonian Realism, and the Technology of Regulation, 71 U. Colo. L. Rev. 1071, 1023–1040 (2000) (contrasting the philosophy of twentieth century regulatory agencies with that of the patent system).

The PTO has included these codes on every U.S. patent since August 4, 1970. See MPEP §901.05(b) (describing the use of INID codes).
RECYCLABLE CORRUGATED BEVERAGE CONTAINER AND HOLDER

FIELD OF THE INVENTION

This invention relates to insulating containers, and especially those which are recyclable and made of cellulose materials.

BACKGROUND OF THE INVENTION

Hot beverage containers have traditionally been constructed of two materials: wax-coated paper and polystyrene. Although both products have received widespread implementation by fast food restaurants and consumers, they each have their own specialized drawbacks which have yet to be overcome.

Polystyrene is an excellent insulator, and because of its unique moldability, can be formed into a myriad of different shapes and sizes. Unfortunately, however, polystyrene is neither easily recyclable nor biodegradable, and must be disposed of in a sanitary landfill. Landfills have become extremely expensive to use and are rapidly being filled to capacity. Polystyrene can also be incinerated, but this disposal method requires a significant amount of environmental safeguards because of the toxic fumes polystyrene emits while burning.

Wax-covered paper products have been used in beverage containers for years, and have increasingly been replacing polystyrene as the material of choice. This material is generally recyclable, and is more readily degraded by environmental exposure than polystyrene. Unfortunately, because of its low insulation qualities, containers made of this material are very difficult to handle.

Accordingly, there is a need for a food and beverage container which provides adequate insulation for comfortable handling, but which is generally friendly to the environment. Such a container must be inexpensive, so as to be a cost effective substitute for either paper or polystyrene alternatives.

SUMMARY OF THE INVENTION

This invention provides recyclable, corrugated container and container holders which can be made from existing cellulose materials, such as paper. The preferred recyclable, corrugated hot beverage container includes a lip and an internal cavity for containing a hot or cold medium. The container includes fluting means, such as fluting adhesively attached to one or more liners, for thermally spacing the hands of the user from the harsh temperatures of the contents of the container.

In the preferred holders of this invention, a corrugated tubular member is provided having at least a first opening for receiving and retaining a cup, or the like. The tubular member's corrugation, like that for the container above, includes fluting means for providing insulating air pockets. The holder can also be fashioned to be collapsible about two or more pivot points for flat storage.

Accordingly, the deficiencies of both paper and polystyrene are overcome at a minimum expense. The containers of this invention can be used for comfortably holding a variety of beverages, such as hot chocolate, soup, or coffee. The provided holders can be used in conjunction with paper cups, aluminum cans, or other beverage containers, without the discomfort associated with condensation and extreme temperatures.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate preferred embodiments of the invention according to the practical application of the principles thereof, and in which:

FIG. 1: is a top plan view of a preferred beverage container holder of this invention;
FIG. 2: is a bottom plan view of the preferred beverage container holder of FIG. 1;
FIG. 3: is a perspective view of the preferred beverage container holder of FIG. 1 disposed around a paper cup;
FIG. 4: is a top view of the preferred beverage container holder of FIG. 1 in a collapsed and flattened condition;
FIG. 5: is a side view of the flattened beverage container holder of FIG. 4;
FIGS. 6a and 6b: are enlarged partial views of preferred fluting structures, in which FIG. 6a illustrates a sinuous fluting adhered to a single liner, and FIG. 6b illustrates a sinuous fluting adhered to an inner and outer liner;
FIGS. 7a and 7b: are enlarged partial views of an alternative fluting structure, in which FIG. 7a illustrates an angular flute adhered to a single lining, and FIG. 7b illustrates an angular flute adhered to an inner and outer liner;
FIG. 8: is a top plan view of a preferred beverage container holder having an inner and outer liner;
FIG. 9: illustrates a planar bottom view of the preferred hot beverage container holder of FIG. 8;
FIG. 10: is a perspective view of the preferred beverage container holder of FIG. 8 illustrating internal flute portions in break-away views;
FIG. 11: is a top plan view of the preferred corrugated beverage container;
FIG. 12: is a bottom plan view of the preferred corrugated beverage container of FIG. 11; and
FIG. 13: is a perspective view of the preferred corrugated beverage container of FIG. 11 illustrating internal flute portions in break-away views.

DETAILED DESCRIPTION OF THE INVENTION

This invention provides corrugated beverage container holders and beverage containers which are environmentally friendly and which provide adequate insulation properties approaching those of polystyrene. The corrugated tubes of these products preferably contain longitudinally extending flutes and include a generally tapered or conical structure, typical of beverage containers. The corrugation can be made of cellulose materials, including craft paper, malleable paper, or recycled paper. Ideally, the fluting and liners of this invention are adhered to one another with a recyclable, and preferably, a biodegradable adhesive, for example, R130 adhesive by Fason Inc., Grand Rapids, MI.

With reference to FIGS. 1-6, there is shown, in multiple views, a preferred beverage container holder 100 of this invention. The preferred holder 100 includes a tubular structure having an inner liner 12 and sinuous fluting 11 disposed around the periphery of the liner 12.

The preferred material of this invention, corrugated cardboard, is generally available in rather large widths of about 5 to 7 feet. The corrugated medium, a web of paperboard, or more preferably, virgin kraft or similar easily recycled cellulose material, is heated and moistened by a steam shower and then fluted by passing it through...
between a pair of rollers. After fluting, the tips of the fluting 11 are glued, preferably employing a recyclable, and more preferably employing a biodegradable adhesive, to the inner liner 12, such as a single face of paperboard or kraft. At least the surface of the liner that is intended to contact the beverage container is desirably treated with a water-resisting or water-proofing agent, such as wax or silicone, for minimizing the absorption of condensation and other liquids into the cellulosic material.

The above-described method produces a single face sheet of corrugated cardboard. The cardboard is then folded flat, or scored, along its inner liner 12 and cut into an arculate shape, such as that depicted in FIGS. 4 and 5. The arculate shape, which is preferably concave 15 at the top, and convex 16 at the bottom, permits the holder 100 to be opened into a generally conical configuration, shown in FIGS. 1-3.

Depending upon the location of the fold line, one or both of the longitudinal sides of the flattened and cut corrugated cardboard are adhered so as to form a tube when the structure is opened. Preferably, the inner liner 12 is adhered or scored to form at least two longitudinally folding axes 14 and 16, which are preferably located 180° apart on the resulting circumference of the open tube. These axes 14 and 16 do not interfere with either the radial expansion or the resulting conical shape formed by the tube.

Alternatively, the fluting of this invention can comprise angular fluting 31 adhesively attached to an inner liner 32, such as that described in FIG. 7a. Alternative constructions for the corrugated structures of this invention can include circular, square, or rectangular fluting, all of which contain insulating air. This fluting can be sealed at one or both ends to provide more containment of the air, or left open to permit the air to flow through as it is heated or cooled by the contents of the beverage container. Finally, the shape of the corrugated "tubular member" of this invention can be round, square, rectangular, star-shaped, or any other desirable configuration.

Double-faced corrugation, such as that described in FIGS. 6a and 7a, can also be employed. Such corrugation is typically found in cardboard boxes, and includes an outer liner 34 or 44 in addition to an inner liner 32 and 42. The liners preferably are constructed with paperboard or kraft and are adhered to the tips of the flutes 21 and 41 on opposite contacting points. The corrugated board is thereafter preferably coated with a water-proofing agent, cut, scored, and adhesively joined to provide a similar construction as described above for the single face sheet.

The normal direction of the flutes of the corrugated materials of this invention is vertical from the top to the bottom of the holder or container, but it is expected that the flutes can be disposed horizontally, or in a direction which is oblique to the central axis of the cup or expanded holder.

The air space created by the combination of the flute and liner is an important element for furnishing the insulating holder and cups of this invention. The substantially contained air in these flutes is an extremely effective insulator and will keep the handling contact surface far below the temperature of the hot or cold beverage contained in the cup or container.

A preferred double-sided corrugated beverage container holder 200 is depicted in FIGS. 8-10. This holder 200 includes outer liner member 24 adhesively disposed at the contact points of flute 21 as substantially earlier described. This embodiment promotes a smoother, more aesthetically appealing exterior which facilitates printing of advertising logos, slogans, and the like. This embodiment has all of the features associated with holder 100, including the optional ability to be collapsed at two or more points along its radial surface, to form a flat structure, similar to that disclosed in FIG. 8.

While this discussion has primarily focused upon the application of this invention for manufacturing the preferred corrugated beverage container 300, it is equally understood that the sealed bottom 117 can be fabricated in the usual manner with a solid waxed paper rim (not shown) in which no fluting is apparent. All that is required to provide a comfortable exterior surface temperature is to dispose the fluting along the exterior cup portions in a manner such that the user's fingers come in contact with an area insulated by the fluting.

It is further expected that the fluting of holder 100 could be reversed so that it is located on the inside of the holder and the liner 12 is located on the exterior of the holder. In such a variation, printing could be more readily provided on the smooth liner 12. In further embodiments of this invention, it is expected that water-proof polyethylene coatings could be used in place of the silicone and wax compositions disclosed above. The industrial application of polyethylene coatings is readily available to known artisans. Finally, although the fluting structure is disclosed as being substantially parallel, a fluting structure which permits the individual flutes to taper to an imaginary vanishing point would also be within the concept of this invention.

From the foregoing, it can be realized that this invention provides improved means for containing hot and cold liquids, which are relatively safe for the environment and which can be produced inexpensively. The corrugated beverage containers and holders of this invention are readily fabricated with existing paper-making equipment, and present adequate solutions to the waste disposal problems associated with polystyrene and the uncomfortable handling normally associated with wax-covered paper cups. Although various embodiments have been illustrated, this was for the purpose of describing, but not limiting, the invention. Various modifications, which will become apparent to one skilled in the art, are within the scope of this invention described in the attached claims.

What is claimed is:

1. A recyclable, insulating beverage container holder, comprising a corrugated tubular member comprising cellulosic material and at least a first opening therein for receiving and retaining a beverage container, said corrugated tubular member comprising fluting means for containing insulating air; said fluting means comprising
fluting adhesively attached to a liner with a recyclable adhesive.

2. The holder of claim 1, wherein said tubular member comprises a corrugated tube having first and second open ends of unequal cross-sectional dimensions.

3. The holder of claim 1, wherein said first and second openings are circular, and said fluting extends between said first and second openings.

4. The holder of claim 1, wherein said tubular member comprises at least two pivot axes for permitting said tubular member to fold into a flattened condition.

5. The holder of claim 1, wherein a surface of said liner is coated with a water-resistant agent.

6. The holder of claim 1, wherein said fluting comprises sinuous fluting.

7. The holder of claim 1, wherein said tubular member comprises a convex shape along a top edge portion and a concave shape along a bottom edge portion when disposed in said flattened condition.

8. A recyclable collapsible beverage container holder comprising a corrugated tube.

9. The holder of claim 8, wherein said flattened structure comprises a convex shape along a top edge portion and a concave shape along a bottom edge portion comprising recyclable cellulosic material, said tube including a liner adhesively attached to fluting for containing insulating air, said tube collapsible about said pivot axes in order to form a flattened structure.

10. An insulating beverage container comprising a cellulosic corrugated tubular member consisting essentially of recyclable material, said container including a first opening and an internal cavity for containing a hot or cold medium, said container including fluting means adhesively attached to a recyclable adhesive to a liner for containing insulating air.

11. The container of claim 10, wherein said liner comprises a water-resistant agent applied to at least a surface of said liner which is to be exposed to said beverage.

12. The container of claim 10, further comprising a smooth drinking lip disposed along a periphery of said first opening.

13. The container of claim 12, wherein said fluting means comprises a sinuous cross-section disposed on said liner.

14. A method for manufacturing a recyclable corrugated beverage container holder, comprising providing a recyclable, corrugated, cellulosic material comprising fluting means adhesively attached with a recyclable or biodegradable adhesive to a liner for containing insulating air, cutting said corrugated material into an elongated strip, and configuring said elongated strip to form a tubular member having a pair of folding axes; said tubular member collapsible about said axes to form a flattened structure.

15. A biodegradable, insulating beverage container comprising a corrugated tubular member containing a biodegradable, cellulosic liner and fluting, said tubular member having an internal water-resistant cavity therein for receiving a hot or cold medium, said fluting adhered to said liner with a biodegradable adhesive to provide means for containing insulating air.

16. The container of claim 15 further comprising a smooth drinking lip.

17. The container of claim 15, wherein said fluting comprises a sinuous cross-section.

18. A biodegradable insulating beverage container holder, comprising a corrugated tubular member containing a biodegradable, cellulosic liner and fluting, said tubular member comprising an internal cavity therein for receiving and retaining a beverage container, said fluting adhered to said liner with a biodegradable adhesive to provide means for containing insulating air.
1 · INTRODUCTION

The practical use of the codes is to help readers unfamiliar with the language and the laws of the jurisdiction issuing the patent to locate quickly basic information about a patent. Thus, for example, a reader finding a patent issued by the European Patent Office (EPO) in German (one of the EPO's three official languages) need not understand that language to know that, if the code “22” precedes the text “Anmeldetag: 17.11.90,” the application for that patent was filed on November 17, 1990. Beyond this practical application, INID codes are visible reminders that patent law is increasingly international, for a transnational system of codes is useful only because the structure of patent rights is so similar in many countries.

(2) U.S. Patent Number. The U.S. patent number (“5,205,473”) is visible in the top right hand corner of the first page. Patent practitioners and courts frequently refer to patents by the last three digits of the patent number. Thus, this patent would be referred to as the ’473 patent.3

(3) Issue Date. The issue date is directly below the patent number. The patent term commences on the date that the patent issues. See 35 U.S.C. § 154(a)(2). Prior to June 8, 1995, U.S. patent rights terminated seventeen years after the date of issue. For patent applications filed on or after that date, however, the patent term generally ends twenty years after the filing date (extensions are allowed for certain bureaucratic delays, see the discussion in Chapter 1.E.3.a “The Patent Term,” infra). For patents that were either pending before or in force on June 8, 1995, the patent term is the longer of (1) seventeen years from the date of issue or (2) twenty years from the date of filing. (Thus, the ’473 patent expired on March 19, 2012.) The change in patent term resulted from legislation implementing the 1994 TRIPs Agreement (see Chapter 1.A, supra, and 1.E.3, infra, for discussions of TRIPs).

(4) Title of the Invention. The title of the invention (here “Cup Holder”) is written by the patent applicant and is a required part of the patent application under PTO regulations. See 37 CFR §§1.72(a) & 1.77(a)(3). If the title is not sufficiently descriptive of the invention claimed, the examiner of the application can require the applicant

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3. The current numbering system for U.S. patent dates back to July 4, 1836, when the Patent Act of 1836 established an administrative system for examining patent applications. Coincidentally (or perhaps not so coincidently), the first patent under this numbering system was issued to John Ruggles, the Senator principally responsible for drafting the 1836 Act; his patent was on a traction wheel for a steam locomotive. See U.S. Pat. No. 1 (“Locomotive Steam-Engine for Rail and Other Roads”) (issued July 13, 1836), available at http://patft.uspto.gov/netahtml/PTO/srchnum.htm; see also P. J. Federico, ed., Outline of the History of the United States Patent Office, 18 J. Pat. Off. Soc’y (special issue no. 7) 1, 95 (1936).

Prior to July 4, 1836, the United States issued 9,957 patents. The PTO now refers to these early patents as the “X-Series” and cites them by issue date and inventor name. See MPEP §901.04. While these patents were originally not numbered, the PTO has since assigned them numbers in the sequence in which they were issued. Some of these X-Series patents are available via the PTO’s website by entering “x” plus the assigned sequence number. However, because an 1836 fire in the early Patent Office destroyed some records, the PTO’s coverage of early patents is not complete. Fortunately, the first U.S. patent has been preserved. It was issued July 31, 1790, to Samuel Hopkins for an improved method of making potash. It is signed by President George Washington and Attorney General Edmund Randolph and is available on PTO’s website noted above by searching for patent number “X1”.

to change the title. See MPEP §606.01. Indeed, because the title should be merely descriptive and should not go to the substance of the invention, the examiner may even make a title change herself. See MPEP §1302.04(a). It should be noted, however, that an examiner’s power to amend any part of a patent application is strictly limited to minor matters not affecting the substance of the patent. For a list of the typographical, grammatical and other matters that an examiner may correct, see MPEP §1302.04. Consistent with the patent law’s general preference for private action, the PTO’s statutory duty is to examine applications, not to write them for inventors. See 35 U.S.C. §§131, 132.

(5) Inventor and Assignee Information. The inventor (here, David W. Coffin, Sr.) is identified immediately under the title of the invention. The prominent position afforded to the inventor on the patent document is consistent with the inventor’s status under the law. Not only does the Patent Act require the inventor to be identified in the patent application but, except in unusual circumstances, it also requires the applicant for the patent to be the inventor or group of inventors actually responsible for the innovation. See 35 U.S.C. §§115, 116. For purposes of the Patent Act, only individuals invent, not corporations.

The law, however, also recognizes that many corporations employ inventors who, as a term of their employment, have assigned to the corporation the rights to their inventions. If an assignment exists, the Patent Act authorizes the PTO to issue the patent to the assignee, see 35 U.S.C. §152, and the assignee (here, the Design By Us Company) is then listed directly below the inventor. For more on the law of inventors and owners, see Chapter 11, infra.

(6) Application Information. The application serial number and filing date are listed next. The application serial number (here, 854,425) is assigned to the application upon filing. As previously mentioned, the patent term under current U.S. law generally ends twenty years after the filing date. Where an application claims priority from an earlier application (see Chapter 1.D.2, infra), information concerning the earlier application is also set forth immediately under the filing date. The filing date of the earlier application is also given and, if that application was filed in the United States, the patent will usually expire twenty years after that filing date.

(7) Domestic and International Classifications. Every issued U.S. patent is classified so that it can be easily found by the public at large and by patent examiners processing future applications. Here again, an international agreement affects the form of the patent document, as U.S. patents are classified under both a domestic and an international system.\(^5\)

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\(^4\) The PTO starts a new series when the serial number would exceed six digits. New series were commenced in 1987 (series 7), 1993 (series 8) and 1998 (series 9). See MPEP §503.

\(^5\) The international classification system is administered by the World Intellectual Property Organization and is based on the 1971 Strasbourg Agreement Concerning the International Patent Classification (available at http://www.wipo.int/treaties/classification/strasbourg/index.html). The international classification code begins with a letter, a number, and a second letter, which designate (respectively) the section, class and subclass; it concludes with two numbers separated by a slash.
(8) Fields of Search, References Cited and Other Information on Prosecution. The core of the application process or "prosecution" is the examiner's search of the existing technology and the comparison of that prior art to the applicant's claimed invention. Indeed, this search and examination of the prior art is central to patent law's policy of "promot[ing] the Progress of Science and useful Arts," U.S. Const., art. 1, § 8, cl. 8, for progress requires an advance over all of existing technology. The issued patent memorializes the examination by identifying the primary PTO examiner, the inventor's patent attorney or agent, and all prior art documents considered during the prosecution. For the extensive law governing what qualifies as prior art and what constitutes a patentable advance over that prior art, see Chapters 5 through 7.

(9) Abstract. The abstract provides a brief summary of the technical disclosure in the patent. Although the Patent Act does not call for a separate abstract in either a patent application or an issued patent, the PTO's regulations have imposed the requirement for the purpose of "enabl[ing] the [PTO] and the public generally to determine quickly from a cursory inspection the nature and gist of the technical disclosure." 37 CFR §1.72(b). The abstract is drafted by the applicant and is considered part of the disclosure or specification. See In re Armbruster, 512 F.2d 676, 678–79 (CCPA 1975). 6

(10) Drawing(s). The Patent Act requires the applicant to submit one or more drawings "where necessary for the understanding of the subject matter sought to be patented." 35 U.S.C. §113. Most patents do include some form of drawing, even if it is merely a schematic drawing, and the PTO has published extensive rules and guidelines on the acceptable formats for patent drawings. See, e.g., 37 C.F.R. §1.84; MPEP §608.02. In contrast to drawings, models of inventions are now almost never submitted with patent applications, though the practice of submitting models was...
more common in the late 18th and early 19th centuries. Thus, applicants need not have constructed their inventions or even models of their inventions in order to obtain a patent. This feature of the law is supported by a sound policy of permitting the patent process to go forward before significant resources are committed to exploiting the innovation.

(11) Specification. The specification, which encompasses the rest of the patent document, is written entirely by the inventor and her agents and is a required part of the patent application. See 35 U.S.C. §111. Within the specification, the inventor must provide a “written description of the invention, and of the manner and process of making and using it,” and must also disclose the “best mode” known to the inventor of carrying out the invention. 35 U.S.C. §112. These three requirements, generally known as the written description, enablement and best mode requirements, comprise the basic disclosure that entitles the inventor to the patent. See Chapter 4, infra.

The disclosure requirements must be satisfied at the time of filing; thereafter, the specification cannot be amended to add any “new matter” that would be necessary to fulfill the statutorily required disclosure. See 35 U.S.C. §132 (“No amendment shall introduce new matter into the disclosure of the invention.”). The statutory prohibition against adding “new matter” to the disclosure prevents applicants from filing before they have completed their inventions and then updating their applications as they finish their research. If the disclosure of the invention is defective at the time of filing, the application will be rejected, and the inventor will be left to file a new application. Thus, the “new matter” bar assures that the inventor possessed all of the information disclosed in a patent by the filing date.

(12) Claims. The patent concludes with the claims, which are the most important part of the modern patent document. As you will see throughout this book, claims are the essence of the legal right granted by a patent; they are “the portion of the patent document that defines the patentee’s rights.” Markman v. Westview Instruments,
By statute, the claims are set forth at the conclusion of the specification. See 35 U.S.C. §112(b). However, unlike the descriptive portions of the specification, the claims are often modified extensively during prosecution of the application. The justification for permitting amendments to the claims is quite simple: The claims should not add any further description of the invention. The function of claims is only to define the precise scope of the intellectual property rights that are warranted by the disclosure made earlier in the specification. Everything in a claim must be supported in the inventor's specification, and claims introducing new features not described in the original specification are invalid. See MPEP §2163.01. Thus, amendments to the claims cannot violate §132's prohibition on introducing "new matter into the disclosure" because the claims do not disclose the invention.

Because claims have such importance in modern patent practice, the following section describes the elaborate "art" of claim drafting. Our focus on claims should not mislead you into believing that the claims are the only important part of a patent. As discussed above, the claims must be supported by the disclosure in the rest of patent specification. Nonetheless, some facility in drafting and interpreting claims is essential to understanding patent law.

C. Patent Claim Drafting Exercises

The purpose of this section is to introduce the essence of the patent right: the claim. On the theory that the best way to see how claims work is to draft a few yourself, this section will lead you through a few simple exercises designed to communicate some of the rudiments of the art.

But before you sit down to do the exercises, you need to know some basic points about claim drafting. Here is a brief summary.

1. The Basics of Claim Drafting

The overall goal when drafting claims is to make them as broad as the Patent Office will allow. There are essentially two constraints on the breadth of the claims you can draft. An inventor cannot claim (i) anything within the mass of publicly available information — what patent practitioners call "the prior art"; or (ii) anything beyond the actual discoveries of the inventor. For example, the inventor of the telegraph, Samuel F. B. Morse, could not claim "all forms of communicating at a distance using electromagnetic energy" (a slight variation of one of his actual claims) both because such a claim would cover prior art (light waves, one form of electromagnetic radiation, had been used for communications long before Morse) and because Morse had discovered only one form of electromagnetic communication — the telegraph. It would be unfair to permit Morse to claim other techniques of electromagnetic...
communications, e.g., radio, telephone, fiber optics, etc., that Morse did not discover. In patent parlance, Morse did not “enable” these later inventions, and so he may not claim them.

It is very important in patent law not to confuse the invention claimed in the patent with the physical manifestations or “embodiments” of the invention. For purposes of the patent law, an invention is only the concept or principle that is articulated in the patent claim. Though the claimed concept must be capable of expression in the physical world, the many particular physical embodiments of the claimed concept do not define or limit the patent right; only the claim does. For example, a patent on a transistor may cover such diverse embodiments as the original transistor created at Bell Laboratories (an ungainly table-top experiment), the first commercial transistors (which were about the size of pencil erasers), and the most recent micro-transistors (millions of which are etched onto minuscule semiconductor chips). All these embodiments share the same inventive principle, i.e., they are instances of the same underlying invention.

Because modern patent law looks to the invention claimed in the patent as the definition of the patent right, infringement litigation always involves a comparison between one or more valid claims and the accused infringer’s products or processes. Utterly irrelevant is any physical embodiment of the invention that may have been created by the inventor (and an inventor is not required to construct such an embodiment to obtain a patent).

All of this leads us back to the claims and, to understand them, we need to identify their main parts. In general, a claim has three parts: (a) preamble; (b) transition; (c) body. We discuss each in turn.

a. Preamble

The preamble introduces and identifies the basic nature of the invention. For example, a claim for a new type of paper clip might read “A device for attaching pages together….” The preamble to claim 1 of the ‘473 patent (set forth above in subchapter B) is “A recyclable, insulating beverage container holder….”

The general function of the preamble is to identify what kind of invention is being claimed. Sometimes it is important in interpreting what comes after it, but usually it just introduces the rest of the claim. Preferably, the preamble should be as broad as possible; it shouldn’t limit the invention to a specific type of the general thing claimed. If it does, it may be used to narrow the scope of the claim. Finally, the preamble should not sing the praises of the invention; in fact, this is inappropriate anywhere in the claims (though not necessarily in the specification). The claim should just state what the invention is, not its advantages.

b. Transition

The transition is a formal part of the claim that serves a vital role in defining claim breadth. There are three basic types of transitions, each with a specific phrase that is usually used:
(i) "Open" Claims: "Comprising"

If the claim reads "An invention comprising elements A, B and C," long tradition in the patent field dictates that the claim covers any embodiment of the invention having elements A, B and C and any additional elements. Thus, if someone begins selling a product with elements A, B, C and D, this will be held to infringe the claim. This style of claim is obviously very powerful; it brings many more potentially infringing embodiments of the invention within the scope of one's claims. For example, an invention claimed as "comprising" a fishing pole and line is infringed by the combination of a fishing pole, line and a reel to take up the line. Quite clearly, "comprising" is the preferred transition — when the prior art allows it. It is the transition phrase used in most patents.

(ii) "Closed" Claims: "Consisting of"

If you claim "An invention consisting of elements A, B and C," someone selling a variant that also incorporates element D does not infringe your claim. This style is therefore much narrower than the "open" style of claim just described. One will of course prefer not to limit the claims in this manner, but sometimes, especially where the invention is in a field jammed with many earlier inventions and other prior art — a so-called "crowded art" — the prior art dictates that a claim be drafted in this closed format.

(iii) An In-Between Format: "Consisting Essentially of"

There is a third type of claim, which occupies a position somewhere between an open and a closed claim. If drafted in this format, a claim would read: "An invention consisting essentially of elements A, B, and C." This claim would cover a variant on the invention having element D only if element D did not make the variant essentially different from the claimed invention. That is, variants having basic and fundamental additions would fall outside the scope of the claim, but those with less significant additions would fall within it.

c. The Body

The body of a claim is all the rest, which is obviously the most important part. In general, the body must perform two functions: (a) list all the elements of the invention (i.e. the parts and features of the invention); and (b) describe how they interact. In drafting this section of the claim, the goal of breadth within the constraints mentioned

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1. See, e.g., Dow Chem. Co. v. American Cyanamid Co., 615 F. Supp. 471, 483–84 (E.D. La. 1985). Slight variants such as the phrase "essentially consisting of" have also been found equivalent to "consisting essentially of," and thereby also occupy a "middle ground" between completely open and completely closed claims. See, e.g., Ziegler v. Phillips Petrol Co., 483 F.2d 858, 878 (5th Cir. 1973); Richard C. Faber, Landis on Mechanics of Patent Claim Drafting 13–14 (3d ed. 1990).
above must be kept in mind. The drafter makes critically important decisions that affect the breadth of the resulting claim in choosing which elements will be considered essential enough to list, how each element will be described, and how the elements’ interaction will be presented.

Since the art of drafting patent claims (at least in their present form) is over one hundred years old, a wide array of specialized words has developed. These words are important for two reasons. First, they have been selected over time to describe elements and their interaction in the most succinct and yet most general manner. Second, because many of them appear in claims that have been challenged and litigated, they have withstood “trial by fire.” Patent attorneys are rightly anxious about the prospects for the claims they nurture and then send into the world. Thus they tend to rely on in-house “exemplar” files and other sources, such as Appendix B to Richard C. Faber, Landis on Mechanics of Patent Claim Drafting (6th ed. 2008), for lists of words and phrases that have appeared in prior U.S. patents and have been blessed by the courts. Naturally, simply using a tried-and-tested word in a patent does not guarantee the patent will be upheld (after all, one is always working with a new invention). But it is better in many cases than resorting to entirely new words. And of course it saves a great deal of time. However, where the inventor has opened a new field, and the vocabulary of technology has yet to catch up, the inventor is perfectly justified in coining new terminology to describe her invention. Like any claim language, of course, such new terminology must be thoroughly described and defined in the patent’s specification.

(i) Three Formal Requirements for Claim Drafting

The Patent Office requires the body of a claim to meet several formal requirements. First, the entire claim must be stated in the form of a single sentence. This sometimes leads to very long and convoluted sentences, but the Patent Office follows this convention, so the drafter must.

Second, as previously mentioned, the claim must set forth how each element interacts with at least one other element; the claim cannot be just a list of elements. It must describe what they do when they act together. For example, a claim to a windmill for pumping water must do more than list “blades or a fan for catching wind; shaft; gears; pump; water pipes.” Something like the following would be appropriate:

I claim—

1. A windmill comprising a wind-catching device, which turns a shaft, which acts on machinery to change the direction of the force, so as to operate a pump that pumps water.

The third important point to keep in mind about the body of a claim is that any internal references must be clear. The examples used so far involve claims that are short enough so that this would not be a problem, but for many inventions requiring long and complex claims, the problem does arise. As an illustration, consider the following fragment from an imaginary claim:
2. A windmill according to claim 1, wherein the force-changing machinery is a set of gears the first of which is attached to the end of the shaft and the second of which contacts the gear.

It is not clear what the italicized phrase “the gear” means. This claim would be rejected by an examiner because the phrase “the gear” has no antecedent basis; which gear is meant? The way to fix the problem is to clarify the initial phrase—“set of gears”—by specifying how many, and then enumerating them as follows:

2. A windmill according to claim 1, wherein the force-changing machinery is a set of two or more gears wherein a first gear is attached to the end of the shaft of claim 1 and a second gear contacts said first gear.

(ii) Independent and Dependent Claims

Claims are drafted in either independent or dependent format. Claim 1 above is an example of the former; it does not refer to any other claim or claims. In contrast, claim 2 is a dependent claim. Other examples are:

3. A windmill according to claim 1, wherein the wind-catching device is a set of rigid blades.

4. A windmill according to claim 1, wherein said pump includes means for drawing water from a depth of at least twenty feet below surface level.

The preamble of these claims—“the windmill of claim 1”—identifies them as dependent claims. (Claim 4 also includes a “means-plus-function” element.) Several other similar phrases can also be used (e.g., “the windmill according to claim 1”). Section 112(b) of the Patent Act even authorizes multiple dependent claims, i.e., claims that refer back to more than one of the preceding claims—e.g., “The windmill as in claim 1 or 2, wherein the wind-catching device is a set of rigid blades.” (Under the Patent Office rules, however, multiple dependent claims may not depend on other multiple dependent claims.)

A dependent claim specifies some feature of the general invention claimed in the independent claim to which the dependent claim refers. The “dependency” then means that the second claim is narrower than the first in at least one respect. In the example above, claim 3 narrows the range of “wind-catching” devices to those that have a set of rigid blades. Thus, a wind-catching device made of a series of sails set on a frame would probably not infringe this claim because the sails are not “rigid blades.”

Note, however, that a windmill along these lines would infringe the independent claim, claim 1. Why then would anyone ever draft narrow claims? One obvious reason is to avoid the prior art: if, for example, the prior art contains windmills of sails, a claim as broad as claim 1 will be rejected, but the narrower claim to windmills with rigid blades may not be.

The more interesting question is why inventors include narrower dependent claims in their patent where the Patent Office is willing to grant a broader independent claim. In general the answer is that narrower claims are a form of insurance. Even if the Patent Office grants a broad claim, there is always the possibility that, in later infringement litigation, the courts will declare the broad claim invalid (which can occur because of numerous reasons that we will learn about in this book). If the broad claim is invalidated, it cannot be used as the basis for an infringement action and, as previously mentioned, a successful infringement suit requires at least one valid claim to cover the accused infringer’s product or process. N narrower dependent claims protect a patentee against the invalidation of the patent’s broader claims because the narrower claims are more likely to be found valid than the broader independent claims. For example, if claim 1 in our windmill example is declared invalid by a court, claims 2 and 3 do not necessarily fail. Even though those claims are dependent, their validity will be separately determined.

Often the claims in a patent begin with the broadest claim which is then “qualified” in a series of dependent claims. (See, for example, claims 1–7 in the '473 patent.) This is followed perhaps by a narrower independent claim, again qualified by a series of dependent claims. Thus, the general structure of a patent often resembles an inverted pyramid: the broadest claims are first, the narrowest last, and the scope of the claims generally “tapers” from the first to the last.

Not only does the use of independent and subsequent dependent claims make sense from the drafter’s point of view, it also helps the patent examiners in performing their job. For example, because it merely imposes limitations on another claim, a dependent claim must be novel if the claim on which it depends is novel, i.e., not anticipated by prior art. Where a series of dependent claims follows an independent claim, the examiner can deal with the entire group of claims together, in a logical way. Thus, claim dependency simplifies examination. In fact, the Patent Office likes dependent claims so much it encourages their use by adjusting the fees charged to patent applicants. Although the fee structure is complicated, in general it encourages the use of dependent claims by charging higher fees for applications with a greater number of independent claims.

(iii) Means-Plus-Function Elements

The elements in a claim can be described through a highly convenient technique known as the “means-plus-function” format. Section 112(f) (formerly, §112, ¶6) of

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3. Although “on which it depends” is perfectly proper and standard English, it is not standard Patent English. Patent practitioners almost always say “from which” the claim depends. Although the verb “depends” can properly be used with “from,” see, e.g., OXFORD DICTIONARY OF QUOTATIONS 20 (3d ed. 1979) (“Each quotation without a full source depends from its immediate predecessor.”), that construction is not common. As a matter of style, therefore, the authors prefer “depends on.”

the Patent Act, 35 U.S.C. §112, explicitly authorizes claim elements in the form “means for doing X,” where “doing X” is the function. For example, a claim might contain an element drafted as “means for fastening together A and B.” This claim element could cover nails, screws, rivets, tape, glue and any other “means for” attaching one thing to another. The “function” here is fastening, and the “means for fastening” element of the claim can therefore cover many means for doing this task. Does it cover all means? The patent statute states that patent claims containing means-plus-function elements “shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” Id. (emphasis added). As we shall see in Chapter 8, infra, this statutory text allows means-plus-function claims to cover many different means, but not necessarily all means. For present purposes, you should remember that a means-plus-function claim (i.e., a claim containing “means for doing X”) can give broad or narrow coverage, depending on the structures disclosed in the specification and the current state of the law. (Means-plus-function claims have been broadened and narrowed at various times in the history of the Federal Circuit, for example.)

One particular limit on means-plus-function claims is worth mentioning. The statute provides that a means-plus-function element can be used only in “combination” with at least one other element. Thus, a so-called “single-means” claim— one having only a single element expressed in a means-plus-function format — is improper. See In re Hyatt, 708 F.2d 712 (Fed. Cir. 1983).

Can you in effect claim an invention in “means plus function” format without using “means for” as the “magic words”? The answer is yes. The Federal Circuit consistently holds that §112(f) is all about reciting claim elements lacking supporting structure in the claims. So sometimes, inadvertently, a claim drafter will end up with a means plus function claim when that is not what he or she intended. See Williamson v. Citrix Online, LLC, 792 F.3d 1339 (Fed. Cir. 2015) (there is no “strong” presumption that functional claim language, when not using the terms “means” or “steps,” falls outside of §112(f)); Chapter 4.E., “Means Plus Function Claims and Functional Claiming.”

(iv) Jepson Claims

Finally, as we will see in subchapter D below, patents may issue not only on wholly new technology, but also on improvements to existing technology. The art of patent drafting includes a special claim format, known as a “jepson claim,” that is specially designed for claiming improvements. (The claim is named after the first case that explicitly approved the format. See Ex parte Jepson, 243 Off. Gaz. Pat. Off. 525 (Ass’t Comm’r Pat. 1917).) An example of a Jepson claim is set forth in the note below.5 As


What is claimed is:

1. A putter type golf club head including a heel portion, toe portion, rear portion, ball striking face, upper surface and bottom sole wherein the improvement comprises:

a longitudinal slot at said rear portion, extending in a heel to toe direction; said slot defining a lower, rearwardly extending flange and an upper, rearwardly extending flange; said upper rearwardly extending flange having a mass substantially greater than the mass of said lower,
you can see, the Jepson claim preamble is relatively long; it sets forth all of the elements of a known device or product (here, a golf putter). The transitional phrase claim is typically "wherein the improvement comprises" or something similar. The language after the transitional phrase then specifies the inventor's improvement. See also Richard C. Faber, Landis on Mechanics of Patent Claim Drafting §57 (3rd ed. 1990) (describing Jepson claim practice). The Jepson claim is only one way to draft an improvement claim. Improvements can also be drafted in the standard format.

(v) Negative Limitations

Sometimes a claim drafter wants to claim a certain element broadly, but is prevented from doing so by a very specific piece of prior art or by some known problem with a specific embodiment of a claim element. In such a case, resort may be had to a negative claim limitation. This generally takes the form of a claim to "element X, except for specific instance Y." So for example, consider one of the dependent windmill claims described earlier: "A windmill according to claim 1, wherein the wind-catching device is a set of rigid blades." It might be possible to draft a version of this claim that reads: "A windmill according to claim 1, wherein the wind-catching device is a set of blades made of any rigid material except wood." Claims like this are permitted under some circumstances, but the drafter has to be careful to lay a proper foundation in the patent specification. See, e.g., Santarus, Inc. v. Par Pharmaceutical, Inc., 694 F.3d 1344, 1351 (Fed. Cir. 2012) (claim to "[a] method for treating an acid-caused gastrointestinal disorder" which included the limitation "wherein the composition contains no sucralfate" is valid, over objection that is failed to satisfy §112(a)’s written description requirement: "Negative claim limitations are adequately supported when the specification describes a reason to exclude the relevant limitation."). According to the Manual of Patent Examining Practice:

The current view of the courts is that there is nothing inherently ambiguous or uncertain about a negative limitation. So long as the boundaries of the patent protection sought are set forth definitely, albeit negatively, the claim complies with the requirements of 35 U.S.C. 112, second paragraph [§112(b)]. Some older cases were critical of negative limitations because they tended to define the invention in terms of what it was not, rather than pointing out the invention. [See, e.g.,] In re Schechter, 205 F.2d 185 (CCPA 1953). Any negative limitation or exclusionary proviso must have [a] basis in the original disclosure. See Ex parte Grasselli, 231 USPQ 393 (Bd. App. 1983), aff’d mem., 738 F.2d 453 (Fed. Cir. 1984). Any claim containing a negative limitation which does not have [a] basis in the original disclosure should be rejected under 35 U.S.C. 112, first paragraph [§112(a)], as failing to comply with the

rearwardly extending flange; said upper flange having a semi-circular opening larger than the diameter of a golf ball centrally located thereon, between and separating said heel portion and said toe portion, whereby the center of mass of said club head is located toward said upper surface and said heel and toe portions of said club head.
written description requirement [see Chapter 4 of this casebook, below, on this topic].

MPEP, 9th ed. 7th Rev. (Nov. 2015), section 2173.05(i), available at http://www.uspto.gov/web/offices/pac/mpep/index.html. See also Omega Eng’g, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed. Cir. 2003) (finding no express disclaimer or independent lexiconography in the written description to justify adding negative limitation); Ex parte Peters, available at http://e-foia.uspto.gov/foia/RetrievePdf?system=BPAI&flNm=fd2011007521-10-24-2012 (in claim to an optical communication device, there was no support in the specification for the negative limitation in the following claim language: “[an] optical waveguide in an optical communication medium having first and second ends with no intervening multiplexer or encoder disposed between the array and the second end of the optical communication medium”).

2. Drafting a Set of Claims for the Pencil

Now that we have reviewed the rudiments of claim drafting, it is time to draft a real claim. For help, we turn to the pencil (as the subject of our patent application, not as a drafting aid).

What could be simpler than a pencil—an everyday object so familiar it hardly seems like an “invention” at all? But of course, like all human-made objects, it was once new; someone really did invent every essential element of the pencil we now take for granted. See Henry Petrosky, The Pencil: A History of Design and Circumstance (1990).

Your task is to put yourself into the past. Imagine you inhabit a pre-pencil world, at least one where the modern pencil does not exist. You are sitting at your desk, drafting patent specifications and claims with a quill pen and ink-well; your hands are black with smudges, and every time you make a mistake you have to either start again or blot the page with an ugly smear.

In walks an inventor.

“I’ve invented a revolutionary new writing instrument,” he says. (Happens to be a he.) “It makes a mark that is dark but doesn’t tear the paper; it doesn’t blot like pens; and, best of all, if you make a mistake, you can rub it out completely with this other thing I’ve invented, made out of rubber. Look, I’ll show you.” At that he pulls out a primitive-looking pencil, a long rectangular chunk of wood with a narrow, flat piece of soft mineral stuck in the top.

“That looks like a bit of rock stuck in a piece of wood. How can you write with that?” you ask, incredulously. You’ve seen inventors before—lots of them—and you are wary of his claims.

“It’s all in the kind of ‘rock’ you use,” he says. With that he grabs a piece of paper and draws a nice, long dark line. You notice that indeed the paper does not tear and that the line laid down is dry the moment it is drawn.

“You might have something there,” you say. “Tell me about it.”
1. INTRODUCTION

Figure 1-3. The Inventor’s New Writing Instrument

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**a. The Invention Disclosure**

At this point the inventor gives you a preliminary description of the invention: what it is, what it does, and a rough sketch of what came before. This is similar to a more formal disclosure statement—actually a written form—often used in large, organized research and development departments. He also provides a sketch of his invention, shown in Figure 1-3, and gives you the following background:

1. In the Classical world, the Greeks and Romans had used a thin metal stylus made of hard lead to make very light marks on paper. This was apparently used primarily for sketching and drawing. This was a refinement of primitive techniques whereby burnt charcoal was used to make marks.

2. Also in antiquity, the Romans used a very thin brush known as a peniculum. It was really a paintbrush or inkbrush, but painted a very thin line.

3. Your inventor discovered that two materials work in his writing instrument: lead (which works less well), and graphite (which works better). Moreover, graphite from certain locations made a much darker line than the type of lead used in antiquity. Specifically, he had discovered that graphite taken from deposits in the vicinity of Cumberland, England, worked best. He had noticed that this graphite was “softer” than other types of graphite, as well as lead. Although graphite was preferred, the inventor insisted on referring to the writing part of his instrument as a “lead.”

4. Your inventor also discovered that most leads were difficult to work with when used in their “pure” form. So he experimented with mixtures of graphite and clay, which he found made the composition more stable. He combined them as follows:

   a. 90% graphite, 10% clay, which he found worked better than graphite alone, but not much better.

   b. 60% graphite, 40% clay, which he found worked very well.
1 · INTRODUCTION

(c) 30% graphite, 70% clay, which he found worked better than (a) but not as well as (b), and which tended to crumble if you put too much pressure on it.

(5) The inventor has found that for the "lead-holder" part of his instrument, many woods worked well, but that softer woods like cedar were easier on the hand than harder woods like oak.

(6) The inventor has found that gobs of rubber can be used to partly erase pencil markings. He has even thought of attaching rubber or some other material to the end of his pencils, but presently they are not connected.

b. The Prior Art

At this point you tell the inventor you would be glad to draft a patent application in exchange for a lifetime supply of pencils. But, of course, before you do so, you might want to check the prior art to see whether this product has previously been invented. (Though there is no obligation to search the prior art and many attorneys do not search prior to filing, we will assume that a search is done for purposes of this exercise.) Your search shows that the inventor has knowledge of what seems to be all the relevant prior art. You find nothing he hasn't mentioned.

Recall from above that you are constrained not only by the prior art but also by the fact that the inventor in your office has not actually discovered all writing instruments. You will therefore not be able to claim all writing instruments, only some kinds of writing instruments.

Now for the exercise: Based on the inventor's disclosure, draft at least three claims: one as broad as possible; another to an intermediate range; and the third, your "fallback" claim, to the precise invention he has so far produced. Try to include the "pencil-plus-eraser" combination in at least one claim. The claims should take up less than half a page, but don't just dash them off; think about them first.

Two points to ponder: can you claim the Cumberland graphite as a separate invention? Or are such "products of nature" off-limits to inventors? (See Chapter 2.) Second, what if you claim both the pencil and the eraser as two separate inventions; could another inventor come along later and claim the combination of pencil and eraser? Are such combinations always unpatentable? (See Chapter 7, "Nonobviousness").

3. A New Cup Holder

In this example, we will consider another simple invention—a new cup holder. The basic problem here is very old: Disposable cups frequently hold very hot liquids such as coffee, tea and hot chocolate. Some form of insulation is needed to protect the hand holding the cup from the heat of the liquid inside. One solution is to make the entire cup out of a good insulator like thick cardboard or styrofoam (a trade name for polystyrene). However, that simple solution has costs. Cups made of thick cardboard are both bulky and, in large quantities, heavy; styrofoam/polystyrene cups
are bulky and create undesirable waste. Moreover, making the entire cup out of an insulator is wasteful if the goal is merely to protect the user’s hand.

An alternative solution is to make the cup out of very thin non-insulating material (e.g., paper) but also to include an insulating band around the cup to protect the holder’s hand. The Coffin ‘473 patent (set forth in subchapter B, supra) is obviously one prior invention that takes this general approach. Another such invention was created by Jay Sorensen; it is essentially a band of heavy paper having a texture similar to what would be produced by a waffle iron. The invention is marketed under the trade name Java Jacket® and is described more fully in the patent disclosure set forth on the following pages (the claims have been intentionally omitted).

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6. We will assume that the ‘473 patent is part of the prior art even though there is a possibility it is not. The determination of whether it is prior art turns on the complicated rules of the pre-AIA version of § 102 of the Patent Act, as covered in Chapter 6, infra. Briefly, the ‘473 patent is prior art if Sorensen invented his device after the filing date of the earlier patent (March 19, 1992). Even if Sorensen completed his invention earlier, the invention disclosed in ‘473 patent could still constitute prior art under certain conditions. We will assume for purposes of discussion that the ‘473 patent does constitute prior art. We note in passing, however, that ‘473 invention was not cited as prior art during the prosecution of Sorensen’s application (not conclusive, of course, as Sorensen may not have known of the ‘473 patent and the PTO examiners are not omniscient) and that at least one newspaper account places Sorensen’s conception of his invention as early as 1991. See David Raths, ‘Java Jacket’ Maintains Its Cool, The BUSINESS JOURNAL, Jan. 2, 1998, at 21 (tracing Sorensen’s idea back to a mishap with a coffee cup in 1991 but also suggesting that the prototype of the invention was not completed until September of 1993). After studying Chapter 6, students are encouraged to determine the circumstances under which each of these inventions has priority over the other; the exercise may serve as a useful review.
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United States Patent [19]
Patent Number: 5,425,497
Date of Patent: Jun. 20, 1995

CUP HOLDER

Inventor: Jay Sorensen, 3616 NE. Alberta Ct., Portland, Oreg. 97211

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Field of Search 294/27.1, 21.2, 33, 294/219, 152; 220/710.5, 755, 758, 759, 412, 738, 739, 903; 220/1.3 H, 1.5 H, 19, 90

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ABSTRACT

A cup holder is disclosed in the form of a sheet with distal ends. A web is formed in one of the ends, and a corresponding slot is formed in the other end such that the ends interlock. Thus the cup holder is assembled by rolling the sheet and interlocking the ends. The sheet can be an elongate band of pressed material, preferably pressed paper pulp, and is preferably formed with multiple embosses and depressions. In one embodiment, the sheet has a top and bottom that are arcuate and concentric, and matching webs and cuts are formed in each end of the sheet, with the cuts being perpendicular to the top of the sheet.

6 Claims, 1 Drawing Sheet
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CUP HOLDER

FIELD OF THE INVENTION

The present invention relates generally to holders for cups. More particularly, the invention relates to a disposable cup holder that can be stored flat and then assembled by a user to fit around a cup. The resulting cup and holder combination increases the gripping ability and insulation value of the cup.

BACKGROUND ART

A cup holder is a removable device that encompasses a cup to provide added features to the cup. These features can include gripping ability, insulation value, and decoration. By gripping ability it is meant that the cup and holder combination is easier to hold in a human hand. Insulation value is important if the cup is holding hot or cold liquids, particularly if the cup is a thin disposable paper cup which has little inherent insulation value. Decoration can include features that make the cup more appealing, such as texture or color, or features that communicate to the user of the holder, such as advertising or instructions.

A conventional cup holder includes a three-dimensional cup retainer in which the cup is inserted. These holders can be in the shape of an annular ring, such as that shown in U.S. Pat. No. 2,028,566, or in the shape of a cup that is oversized relative to the cup to be held, such as that shown in U.S. Pat. No. 2,617,549. In order to provide insulation value from a material that is thermally conductive, such as paper, the cup holders are usually provided with annular grooves or vertical flutes so that the holder is only in contact with the cup at the valleys in the grooves or flutes. These grooves or flutes provide a structural integrity to the cup holders such that they must be packaged in substantially the same form as they will be used. Thus a significant volume is required to store a quantity of the cup holders. Therefore it is cumbersome for a retailer selling drinks in cups to use the cup holders because a significant amount of shelf space is required just to have a sufficient quantity of cup holders accessible for immediate use.

It is an object of the invention to reduce the volume required to store cup holders.

Conventional cup holders may also require significant amounts of handling and operations to be assembled. It is a further object of this invention to reduce the number of steps involved in making a cup holder ready for ultimate use by the consumer.

An object of the invention is to produce a cup holder by bending a sheet and interlocking the ends.

It is another object of the invention to improve the gripping ability of a cup.

Yet another object of the invention is to thermally insulate the hand of a user from the liquid held in a cup.

Another object of the invention is to form a cup holder from a substantially flat sheet of pressed paper pulp.

SUMMARY OF THE INVENTION

The invented cup holder is designed for use with an upright cup. The cup is in turn designed for holding hot or cold liquids, and has an open rim and closed base.

The invented cup holder is formed from a sheet of flat material, preferably pressed paper pulp. The sheet is formed to have a length defined by a first end and a second end. The sheet has a width defined by a top and a bottom. Two cuts are made in the sheet, the first cut extending partially across the width of the sheet and adjacent one end. The second cut also extends across the width of the sheet, but adjacent the end of the sheet opposite from the first cut. Preferably, one of the cuts severs the top of the sheet and the other of the cuts severs the bottom of the sheet. A holder conforming to a cup can then be made by rolling the sheet into a substantially cylindrical shape and interlocking the first end with the second end by interlocking the first cut with the second cut. Once the cylindrically shaped cup holder is made, a cup can be inserted into the cup holder.

The sheet includes a texture to increase the gripping ability and insulation value of the cup holder. In one embodiment, the texture includes multiple miltions and depressions interspersed about the sheet, preferably in a uniform repeating geometrical pattern. The depressions can be aligned in rows forming troughs, so that any liquid that should spill on the cup holder will tend to trickle along the troughs.

If the cup holder is to hold a tapered cup, the holder fits the cup better if the top and bottom of the sheet are arcuate and essentially concentric. Preferably, the first cut is substantially non-parallel to the second cut such that the first cut and the second cut extend along lines that are substantially perpendicular to the arcuate top. When a sheet so formed is made into a cup holder, the resulting holder is tapered with a top and bottom that define planes essentially parallel to the planes defined by the rim and base of the cup to be held. The cuts will also be aligned with the taper of the cup when the holder is assembled, that is, the cuts will extend along a line that is substantially perpendicular to the above planes.

Alternatively, the present invention can be viewed as a combination of a cup and a cup holder. The cup holder is an elongate band having ends that detachably interlock. When the ends are so interlocked, the elongate band extends in a continuous loop. One method of interlocking the ends is by forming interlocking slots in the band. Preferably, the band includes a texture to increase the gripping ability and insulation value of the combination. The texture can include multiple miltions and depressions interspersed about the band, preferably in a uniform repeating geometrical pattern. If the cup used as part of the combination is tapered, the tipper and lower surfaces of the band can be concentric arcuate shapes so that the continuous loop formed from the band is approximately conformed with the cup.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an assembled cup holder formed in accordance with one embodiment of the present invention, shown unassembled.

FIG. 2 is a top plan view of the cup holder of the present invention, shown unassembled.

FIG. 3 is a perspective partial view of a stack of the cup holders shown in FIG. 2.

FIG. 4 is a partial front elevation of the combination shown in FIG. 1, shown with liquid spilled on the cup holder.

FIG. 5 is a partial front sectional view of the combination shown in FIG. 4, taken along the line 5—5 shown in FIG. 4.
3

DETAILED DESCRIPTION AND BEST MODE OF CARRYING OUT THE INVENTION

Referring to FIG. 1, the cup holder 10 is shown in combination with a cup 12. Cup 12 is usually a tapered paper cup with an open rim 14 and a closed base 16. Cup holder 10 is shown in its assembled state in FIG. 1, and can be described as a continuous loop.

Cup holder 10 is shown unassembled in FIGS. 2 and 3, and is in the form of a sheet 18, also described as an elongate band having distal ends. Sheet 18 has a length 20 defined by a first end 22 and a second end 24. Sheet 18 also has a width 26, defined by a top 28 and a bottom 30. Top 28 and bottom 30 are preferably arced in shape. Thus top 28 can be described as an elongate arcuate surface and bottom 30 can also be described as an elongate arcuate surface. Elongate arcuate surface 28 is essentially concentric with elongate arcuate surface 30, such that the radius of surface 28 is longer than the radius of surface 30 by an amount approximately equal to width 26.

A first cut 32 is made in sheet 18 adjacent first end 22. First cut 32 extends partially across width 26, and preferably separates top 28 such that a first tab 34 and first web 36 are formed. A second cut 38 is made in sheet 18 adjacent second end 24. Second cut 38 extends partially across width 26, and preferably separates bottom 30 to form a second tab 40 and second web 42.

When sheet 18 is configured as described above, a cup holder can be assembled as follows. Sheet 18 is rolled into a substantially cylindrical shape, and cuts 32 and 38 are interlocked with webs 42 and 36, respectively, thereby interlocking first end 22 with second end 24. The resulting cup holder forms a continuous loop as shown in FIG. 1, and can hold cup 12 by inserting cup 12 into cup holder 10. Elongate arcuate surface 28 forms an open annular top that is substantially parallel with rim 14 of cup 12. Elongate arcuate surface 30 forms an open annular bottom that is substantially parallel to base 16 of cup 12. Cup 12 extends through the open top and open bottom and, as shown in FIG. 5, encircles cup 12 so that cup holder 10 lies under an inner surface and an outer surface 60. First cut 32 and second cut 38 extend along a line shown generally at 44. Line 44 is substantially perpendicular to rim 14 of cup 12. Alternatively, line 44 can be described as extending along the taper of cup 12.

As shown in FIGS. 4 and 5, sheet 18 is provided with a texture indicated generally at 46. Texture 46 includes multiple nibs nibs 48 and oppositely shaped discrete, approximately semi-spherically shaped depressions 50 distributed on substantially the entire inner surface of sheet 18. Nibs 48 and depressions 50 are arranged in a repeating geometrical pattern. Preferably, depressions 50 are aligned in rows forming troughs indicated generally by line 52 in FIG. 4.

Should liquid spill on cup holder 10, as indicated generally at 54 in FIG. 5, liquid 54 will tend to trickle along troughs 52. When the combination of cup holder 10 and cup 12 is held by a human hand, the hand will tend to be held away from troughs 52 by nibs 48. Thus the hand will be kept out of contact with liquid 54. Furthermore, as shown in FIG. 4, when cup holder 10 is placed on an upright cup 12, troughs 52 extend along lines that intersect both rim 14 and lines extending along the taper of cup 12 at acute angles. Thus the flow of liquid 54 down cup holder 10 is slowed relative to the flow of liquid down vertically oriented flutes.

In addition, texture 46 provides an increased gripability to the cup and cup holder combination. Specifically, nibs 48 provide a surface texture which is more easily held by a human hand.

Texture 46 also adds an insulation value to the combination because depressions 50 define non-contacting regions 56 of sheet 18, and thus the surface contact between cup holder 10 and the hand of a user and cup 12, respectively. Thus conductive heat transfer is reduced. The insulation value is also increased by air gaps 58 formed by texture 46.

Furthermore, texture 46 is pleasing in appearance, and therefore provides decoration for cup holder 10.

Cup holder 10 as described above and shown in the figures is made from a reversible, two-sided sheet 18. That is, when sheet 18 is rolled to form a continuous loop, either of the textured sides can serve as the outside of cup holder 10. The reversibility of cup holder 10 is particularly evident when, as shown in FIG. 5, inner surface 58 and outer surface 60 are mirrored, that is, when each depression 62 on inner surface 58 defines a nib 48 on outer surface 60 and each depression 62 on outer surface 60 defines a nib 48 on inner surface 58. Non-reversible cup holders are, however, envisioned within the scope of the present invention.

Alternatively, the present invention can be viewed as a method of making a cup and cup holder combination. The method includes the steps of providing a flat sheet with a texture, forming the flat sheet into an elongate band 18 having a top elongate arcuate surface 28 and a bottom elongate arcuate surface 30. Elongate arcuate surface 28 is severed with a first cut 32 extending partially across elongate band 18. Elongate arcuate surface 30 is severed with a second cut 38 extending partially across elongate band 18. Elongate band 18 is then rolled to form a substantially cylindrical shape, and first cut 32 is interlocked with second cut 38 to form a continuous loop. A cup 12 is then inserted into cup holder 10.

Many materials are envisioned for use in making sheet 10, however pressed paper pulp is preferred. Pressed pulp, similar in properties to that used to make semi-rigid paper products such as egg cartons, is pleasing to the touch, partially absorbent, easily formed and relatively inexpensive.

INDUSTRIAL APPLICABILITY

The invention cup holder and cup and cup holder combination are applicable in any situation where the gripability, insulation value, or decoration of a cup needs to be augmented. It is particularly applicable for a cup holder for holding paper coffee cups.

While a preferred embodiment of the invention cup holder and cup and cup holder combination have been disclosed, changes and modifications can be made without departing from the spirit of the invention.

We claim:

1. A cup and holder combination comprising: a cup for holding hot or cold liquids; and a holder defined by a band mounted on and encircling the cup, the band having an open top and an open bottom through which the cup extends and an inner surface immediately adjacent the cup with a plurality of discrete, spaced-apart, approximately semi-spherically shaped depressions distributed on substantially the entire inner surface of the band so that each depression defines a non-contacting region of the band creating an air gap between the
If there had been no relevant prior art, Mr. Sorensen could have made a claim as broad as:

1. A cup holder comprising a band of insulating material.

This claim has one great virtue—its simplicity. Because it contains so few elements or limitations (a synonym for elements), the claim has a very broad scope. It will cover insulating cup holder bands of paper, cardboard, cloth, plastic, etc. The lesson here is simple: the fewer limitations or elements in a claim, the more products that will infringe the claim. And since the goal of claim drafting is to make the claim cover as many products as possible, the lesson may be restated: shorter claims are usually better. An extreme example is discussed in *In re Seaborg*, 328 F.2d 996 (C.C.P.A. 1964) (see Chapter 5.C, infra), concerning a patent filed by the Nobel prize-winning physicist Glenn Seaborg; claim 1 reads simply “Element 95”—a two-word tour de force of claim draftsmanship.

The caveat to “shorter is better” is that the short claim must be valid. Here, our short, broad claim fails that test: It is too broad; it covers a number of items in the prior art including the Coffin ‘473 cup holder. In fact, there are a number of relevant pieces of prior art, a few of which we shall discuss below.

*a. The Prior Art*

As is often the case, other inventors have been active in the field. (The march to progress is not a particularly solitary one.) Thus, in drafting your claims, you will have to “skirt around” the work of these other inventors. Later in this book, we will delve into this idea deeply, as many cases turn on this issue. For now, just consider the common-sense notion that you cannot claim in your patent what someone else has already invented or described to the public. In patent parlance, this means you must take into account the “prior art” in drafting your claims. To get an idea of what this involves, we must first see a description of exactly what this prior art is. Let us assume that our review of the prior art has produced the following four items:

1. The Invention Disclosed in the ‘473 Patent. The ‘473 patent obviously prevents any broad claim to a cup holder comprising an insulating band. Like the Java Jacket, it also uses air pockets as the insulator to protect a user’s hand from the hot surface of the cup. But there are also differences. (Can you determine whether the ‘473 patent would be infringed by Java Jackets produced according to the teachings of Sorensen’s patent?)

2. The Seipel et al. Cup Holder Patent. A patent issued in 1936 to Harry C. Seipel and Paul A. Yerger shows another type of corrugated cup holder (see Figure 1-4 on the following page). The single claim from this patent reads:

What is claimed is—

A cup holder for a tapered cup, comprising a sleeve formed of flexible material and said sleeve being provided with circumferentially extending corrugations which gradually increase in depth from one end of the sleeve to the other end thereof, the corrugations forming interior and exterior ribs and separating grooves, the interior ribs forming a plurality of spaced gripping points for
1. **INTRODUCTION**

Figure 1-4. The Seipel Prior Art Cup Holder

![Seipel Patent Diagram](image)

a tapered cup placed in the holder and the exterior projections providing finger holds, said sleeve being of considerable less length than the length of the cup to be held and adapted to engage an intermediate part of the cup.

U.S. Pat. No. 2,028,566 (Jan. 21, 1936). Unlike the ’473 patent, the Seipel cup holder need not be composed of two pieces (a liner and corrugated paper) held together by glue.

3. **The Miller Cup Patent.** A patent issued in 1964 to William L. Miller discloses a cup that includes a band of protuberances designed to protect the hand of the user and to provide a good grip (see Figure 1-5). The first claim of that patent reads:
I claim:

1. A cup structure of the character described comprising a thin walled generally frustro-conical body, a bottom, an open mouth and a finger gripping band extending about the body beneath the mouth, said band being com-
posed of a plurality of thin walled protuberances having small area peaked portions, the outward protuberances being spaced from one another both circumferentially about the band and axially across the band and yet lying so closely in relation [to] one another that a finger or thumb of a person gripping the cup body at the band will engage only small area peak portions of the thin walled protuberances and not main body portions of the body between the protuberances and air circulating spacing will be provided between the protuberances of the band and between thumb or finger portions engaging protuberances and body wall portions underlying and not contacted by said protuberances engaging thumb or finger portions.


This claim and the associated patent describe a band of protuberances similar to those in the Sorensen invention. The patent claim also mentions an air space that provides part of the insulation protecting the user's hand. However, where the user's hand comes into contact with the protuberances of the cup, there is no air gap between the user's fingers and the hot liquid inside the cup. Instead, the Miller cup relies on a different effect to protect the user's hand: The liquid filling the indentation on the inside of the cup will not circulate well with the rest of the liquid in the cup and will therefore be slightly cooler. See id. at col. 4 (noting that the protuberance will “hold a fillet-like portion 27 of liquid in heat dissipating contact with the protuberance and against free circulation in the hot liquid which may be contained in the cup”); see also Figure 1-5 (reproducing “Fig. 11” from the Miller patent).

4. The Noon Cup Holder Patent. Our final piece of prior art is a patent issued to Kelly D. Noon in 1987. See U.S. Pat. No. 4,685,583 (Aug. 11, 1987) (Figure 1-6). It is handle-style cup holder that shows a number of means for joining together the ends of a cup holder, including interlocking slits.

Figure 1-6. The Noon Prior Art Cup Holder
b. Summary of the Prior Art

It is often useful to construct a table listing the major features or elements of the invention and showing which of those features are shared by items in the prior art. An example of such a table is set forth in Table 1-1, supra.

Such tables are useful for several reasons. First, they force us to identify the various features of an invention. Second, they provide an instant summary of the prior art. Finally, they allow a quick comparison of the invention with the prior art. For all these reasons, prior art tables help clarify issues concerning the patentability of an invention. By the same token, similar tables can be constructed to compare a patented invention with a competing product accused of infringing the patent.

Note that constructing such a table requires care and some judgment as to which of the various features of the invention should be listed as the elements. For example, element [5] is listed here even though the technique of linking together the ends of a cup holder already exists in the prior art. In drafting claims, a patent attorney will have to decide whether those interlocking ends are an important feature of the invention or whether the feature should be relegated to a dependent claim, or not included at all.

c. Drafting around the Prior Art

From the table we can see that, like most inventions, Sorensen’s cup holder is basically a combination of elements that already exist in the prior art. Although we would like to draft claims to include the very broad concept of a cup holder comprising an insulating band or, somewhat more narrowly, a band with insulating air spaces, we see that this is not possible in light of the prior art. The goal then is to draft claims covering Sorensen’s improved cup holder as broadly as possible, yet not covering anything within the prior art.

One way to distinguish away all of the prior art would be to claim an insulating strip with interlocking ends. Such a claim might read as follows:

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Table 1-1

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<tbody>
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<td>X</td>
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<tr>
<td>Prior Art:</td>
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<tr>
<td>Coffin ’473 Cup Holder</td>
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<td>X</td>
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<tr>
<td>Seipel et al. Cup Holder</td>
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<td>X</td>
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<tr>
<td>Miller Cup</td>
<td></td>
<td>partly</td>
<td>X</td>
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<td></td>
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<tr>
<td>Noon Handle</td>
<td>X</td>
<td></td>
<td></td>
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<td>X</td>
</tr>
</tbody>
</table>
I claim:—

1. A cup holder comprising a strip of insulating material, said strip having two ends capable of interlocking to form a band for receiving a cup.

You should note that all of the words in this claim have been drawn from the specification. This is important because the claims must be supported by the rest of the patent document, i.e., by the specification and drawings. Using words drawn from the specification also allows claims to be relatively compact. For example, the word “interlocking” might, in isolation, appear vague. Precisely how do the ends of the strip interlock? The specification provides the answer; it informs the reader how the inventor interlocks the ends of his strip to create his cup holder. Thus, the claim can simply use “interlocking” without explanation and, in light of the specification, the word has a definite meaning.

While the claim set forth above is acceptable as a matter of style, it nonetheless has two serious problems. First, as a practical matter, the claim may be too narrow to offer the inventor worthwhile protection. If a cup holder is created by gluing together the ends of an insulating strip, it will not infringe the claim.

Second, the claim might be rejected by the examiner as an obvious variation of the prior art. See Chapter 7, infra. As shown by the prior art table above, cup holders made from insulating bands are old in the art; so too is the technique of using interlocking slots to create a cup holder. Combining those features may be viewed as obvious. Indeed, the specification of the Seipel, et al. patent teaches that a cup holder can be formed by having the end portions of an insulating strip “overlapping and secured together … by suitable means,” U.S. Pat. No. 2,028,566 (col. 2, lines 6–7), and the specification of the Noon patent teaches interlocking ends as one of many ways to secure together the ends of a strip to create a cup holder. Interlocking ends may, therefore, be viewed as one of the suitable means for joining together the overlapping ends of an insulating strip. In fact, although Sorensen's patent application initially included claims to the interlocking feature of his cup holder, see U.S. Pat. App. 8/150682 (filed Nov. 9, 1993), at 9–11 (reprinted in Official File Wrapper for U.S. Pat. No. 5,425,497), the issued claims omit any mention of the feature.

Is there another way to distinguish the prior art? Obviously, there must be, because Mr. Sorensen received a patent. Look carefully at the prior art table on the previous page and try to draft another claim for this invention. Remember that your language must be supported by the disclosure of the patent, so you should draw language for your claims from the specification. (In actual practice, you would draft the specification too, but since we are focusing here on claim drafting, we have provided the complete specification to help you.) One of the actual claims from the Sorensen patent is provided in the final footnote to this section. Do not, however, think that this claim is the answer to the question of how to draft a claim. It is one of many good answers; even simple claims can be drafted in numerous acceptable ways.

We conclude with a brief note about claim format and claim ambiguity. First, as to format, though claims must be set forth in a single sentence, there are no rigid
rules governing the precise format of this sentence. In long claims, it is perfectly acceptable—indeed, desirable—to use line breaks and indentations to distinguish the various elements of a claim. Such a format aids the reader and is expressly permitted by the PTO’s Manual of Patent Examination and Practice. See MPEP §608.01(m). An example of this formatting is set forth in the note below.7

Claims can also be represented in schematic or outline form, with bracketed numbers or letters placed before each element. An example of this format is also set forth below.8 (The claim is taken from a patent that was the subject of a very famous decision, State Street Bank & Trust Co. v. Signature Fin. Group, 149 F.3d 1368 (Fed. Cir. 1998), covered in Chapter 2.) The schematic form is quite useful for analyzing claims, since it more clearly identifies the individual elements and makes referring to them much easier. Thus, courts will sometimes put claims into this form to facilitate analysis in infringement litigation. See, e.g., Barret v. United States, 405 F.2d 502, 505 (Ct. Cl. 1968).9

7. Claim 1 from U.S. Pat. No. 6,000,000 (Dec. 7, 1999) reads as follows:
1. A method of sharing information on a first computer system and a second computer system, said method comprising:
   connecting said first computer system to said second computer system with a data communications link;
   providing a library of functions in said second computer system for accessing information on said first computer system;
   creating a conduit program database, said conduit program database for storing a list of conduit programs that may be executed,
   registering a first conduit program by placing an identifier for said first conduit program in said conduit program database, said first conduit program comprising a computer program on said second computer system for performing a specific data transfer task;
   successively executing a set of conduit programs identified within said conduit program database from a manager program, each of said conduit programs accessing said library of functions for communicating with said first computer system.

8. Claim 1 from U.S. Pat. No. 5,193,056 (Mar. 9, 1993) reads as follows:
1. A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:
   (a) computer processor means for processing data;
   (b) storage means for storing data on a storage medium;
   (c) first means for initializing the storage medium;
   (d) second means for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, assets and for allocating the percentage share that each fund holds in the portfolio;
   (e) third means for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;
   (f) fourth means for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and
   (g) fifth means for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

9. As promised, we here set forth claim 4 from the Sorensen invention:
4. A holder for encircling a liquid-containing cup to reduce the rate of heat transfer between the liquid contained in the cup and a hand gripping the holder encircling the cup, comprising
Finally, no matter how carefully a claim is drafted, there often remains the inevitable ambiguity of language. For example, even the simple Coffin patent set forth in subchapter B above has generated litigation over the meaning of the claims. Does the phrase “recyclable adhesive” in the claims mean that the adhesive itself is recyclable or merely that the adhesive does not interfere with recycling the paper cup holder? See Design by Us Co. v. Best Foods, Inc., 2000 U.S. Dist. LEXIS 10669 (E.D. Pa. Aug. 1, 2000) (adopting the latter interpretation). As we will see in Chapter 8, infra, claim interpretation is an increasingly important and controversial part of modern patent litigation.

d. A Growing Foundation for Future Invention

Even the most mundane technologies can spur related innovations. As of early 2010, 97 utility patents referenced Mr. Sorenson’s ’497 patent. For example, a patent for a folding magnetic holding wrap for cups or mugs was issued to Timothy W. Exler in 2006. See U.S. Pat. No. 7,021,594 (2006). Other patents that reference the ’497 patent include numerous cup holders and manufacturing technologies. See, e.g., U.S. Pat. No. 7,117,066 (2006) (claiming a cup forming machine). Moreover, related innovation has moved into the realm of business methods. See U.S. Pat. No. 6,749,240 (2004) (referencing the Sorenson patent and disclosing a business method for advertising and distributing sales incentives on a useful device). Finally, some patents citing the ’497 patent may be utterly obvious variations. See, e.g., 5,826,786 (Oct. 27, 1998) (disclosing a “flat-folded” cup holder).


Although claims are the heart of patent law, some other introductory concepts are necessary to understand patent law. Here we provide a brief introduction to the nature of patent rights, followed by a discussion of the major components of the patent legal process.

The right to exclude others has been described as the “hallmark of a protected property interest,” College Sav. Bank v. Florida Prepaid Postsecondary Educ. Expense Bd., 527 U.S. 666, 673 (1999), and “one of the most essential sticks in the bundle of rights that are commonly characterized as property,” Kaiser Aetna v. United States.
1 · INTRODUCTION

444 U.S. 164, 176 (1979). Patents are considered property rights precisely because they confer this right. Section 154(a)(1) of the Patent Act expressly grants patent holders "the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States."

Unlike other forms of property, however, a patent includes only the right to exclude and nothing else. Patent rights are wholly negative rights—rights to stop others from using—not positive rights to use the invention. Thus, inventors and patent holders may be barred from practicing their inventions without creating any conflict with the basic patent. For example, an inventor who patents a device for detecting police radar has no right to use the invention in those States that outlaw such detectors. See, e.g., Whistler Corp. v. Autotronics, Inc., 14 U.S.P.Q.2d (BNA) 1885 (N.D. Tex. 1988) (discussed in Chapter 3.B, infra). Patentees may also be excluded from practicing their inventions by other patents. Where patent rights overlap—e.g., where one inventor patents a broad basic technology and another patents an improvement within that technology—both patent holders have the right to exclude within the area of overlap. Such a circumstance is known as "blocking patents" because each patentee can block the other from practicing at least part of her invention.

The basic nature of patent rights also reveals the inaccuracy of describing patent rights as "monopolies." A rough economic definition of "monopoly" requires the monopolist to be the sole seller of a good with no reasonable substitutes. For example, an exclusive right to sell blue cars would not confer a monopoly because cars colored red, white, etc. are good substitutes for blue cars. In contrast, an exclusive right to sell telephones probably would constitute a monopoly because other means of communication (e.g., letters, emails, etc.) are sufficiently different that they are not always good substitutes.

Though some patents may give their holders monopoly power in a field (e.g., Morse's patent on the telegraph and Edison's patent on the electric light), most do not. Many patents are like the cup holders studied above. They give their owners a right to exclude others from a certain piece of technology that competes with other patented technologies and with unpatented technologies. Thus, though some courts and commentators call patents "monopolies," that description is best avoided.

1. Patent holders must even worry about a form of "virtual" competition: If patented goods are priced too high, customers may threaten to develop new non-infringing substitutes. If the threat is credible, it can constrain the patentee's royalties—an effect that economists would say makes the market "contestable." In fact, one of the chief customers of the '473 patent—the Starbucks Corporation—followed this strategy. It even developed a prototype of a new coffee cup that would eliminate its reliance on the '473 invention:

The prototype design [of the Starbucks cup] featured an outer paper skin and an inner polyethylene liner. Between them was a thin air space, created by a pattern of small whiffs of steam pressed into the cup, in part for easier holding. In making those shapes, tiny air pockets were created and acted as an insulator.

Finally, we should distinguish among the three types of patents offered under U.S. law—utility patents, design patents and plant patents. Utility patents are the most prominent category of patents and our main subject of study. They cover useful creations and are commonly called “patents” without any modifier. (Don’t confuse a utility patent with a utility model, a kind of “junior patent” available in some foreign systems but not in the U.S.) Design patents cover decorative rather than useful creations—for example, a new, aesthetically pleasing lamp design. Plant patents cover, not surprisingly, living plants. We will discuss plant patents to some extent in Chapter 2, infra.

1. Overview of the Processes of Patent System

A schematic of the U.S. patent system is set forth in Figure 1-7. The basic structure is relatively simple, with a three-tiered hierarchy of institutions. At the apex of the hierarchy is, of course, the Supreme Court, and any legal proceeding that begins in either administrative or judicial institutions may eventually make its way to the Supreme Court. Historically, the Supreme Court has maintained an active role in supervising the operations of the patent system, and that historic role has been reaffirmed in the last two decades, with the Court now averaging two or even three patent decisions per year. While two or three cases per year represents only a tiny fraction of patent proceedings, the Court’s rulings establish basic legal principles that are then applied by every other institution in the hierarchy.

The Supreme Court exercises appellate jurisdiction over the Federal Circuit, which is the judicial institution responsible for the most cases concerning patent law and is to build a better coffee cup—a decision that the manufacturer of the ’473 coffee sleeves described as “definitely a good thing for us.” Id. Might not the owners of the ’473 patent have kept royalties low to reduce the incentive to avoid the ’473 patent? Would the Starbucks prototype infringe any of the claims in Sorensen’s patent?
1 · INTRODUCTION

the primary day-to-day judicial supervisor in the system. The court is specialized in
the sense that it lacks the general jurisdiction possessed by other courts of appeals
over federal criminal and civil appeals. The court's jurisdiction, however, is not limited
to patent law; it encompasses appeals in a variety of other specialized matters involving
trademarks, government contracts, money claims against the United States government,
veterans' benefits, and government personnel matters. Patent cases make up
the largest fraction of the court's jurisdiction, accounting for 62% of the appeals filed
in, for example, 2015. See http://www.cafc.uscourts.gov/sites/default/files/Caseload

The Federal Circuit exercises appellate jurisdiction over two different types of in-
stitutions in the patent system: the U.S. Patent and Trademark Office (PTO), which
is the primary administrative institution for patents in the Executive Branch of the
government; and the U.S. District Courts, which are the institutions in the Judicial
Branch responsible for trials of patent enforcement actions in geographically defined
districts throughout the United States. (Not shown on the simplified diagram in
Figure 1-7 is the International Trade Commission, which is a trial-level administrative
body that can bar the importation of infringing products and which is also subject
to the appellate jurisdiction of the Federal Circuit.)

In the past, the PTO's job in the patent system was largely focused on examining
patent applications and deciding which applications should issue as patents. In the
past third of a century, however, several statutes have given the agency ever more au-
thority to review the validity of previously-issued patents. After the enactment of the
post-issuance review processes are now an essential part of the U.S. patent system,
and they are frequently used as alternatives to district court litigation for challenging
the validity of issued patents.

Below we discuss in more detail the administrative and judicial responsibilities in
the patent system.

2. Patent Prosecution

Applications for patents are processed administratively by the Patent and Trademark
Office, which is usually referred to as "the PTO" or by its former name, the "Patent
Office." The application process is known as "prosecution." The "average" time from
filing to patent issuance is approximately two to three years, but the actual time varies
immensely from case to case. A few applications are issued within a year of the date
of application, particularly if the patent applicant is willing to pay extra money for
a special "fast track" expedited patenting process; others languish in the PTO for years.

2. The Oxford English Dictionary's first definition of "prosecute" is: "To follow up, pursue; to per-
severe or persist in; follow out, go on with (some action, undertaking, or purpose) with a view to
sometimes confuse this term with "persecute," which is not surprising, given the great deal of discretion
placed in the hands of the individual examiner.
and, in a few rare cases, even decades. (The multi-decade pendency issue was especially troublesome in the days when patent term was measured from the date of issue rather than the date of application.)


Patent applications filed in the U.S. must be “novel” or new in order to be patentable. For most of its history, the key date for novelty purposes was the day an inventor actually made his or her invention. Determining the “invention date” under U.S. law was a complex undertaking, and the U.S. rule differed from that followed in other countries, which determined novelty not as of the invention date, but as of the filing date for a patent application. The struggle to move the U.S. away from its idiosyncratic “first-to-invent” novelty system, and toward the international “first-to-file” system, culminated with the enactment of the AIA in 2011, which completely rewrote the novelty provisions codified at §102 of the Patent Act.

First-to-file novelty under U.S. law now applies to any patent application filed on or after **March 16, 2013**. (Congress made the new novelty system effective eighteen months after enactment of the AIA, which explains the March 16 date.) From that date onward, patent applications will be prosecuted under the new first-to-file rules. The details of the new and the old rules are covered in Chapters 5 and 6, *infra*. Even though the U.S. now adheres, for the most part, to the international “first-to-file” norm, U.S. law continues to have some very distinctive features. The key difference is that the AIA includes an apparently generous “grace period,” which significantly modifies the first-to-file rules in some cases. Most importantly, an inventor who publishes, uses or otherwise discloses an invention prior to his or file filing date might not lose patent rights; by filing within one year of this disclosure, the inventor preserves the chance to get a U.S. patent (although, as discussed in Chapter 5, the PTO has adopted an interpretation of the AIA’s grace period provisions that could make them unreliable and thus largely useless). The AIA’s apparently generous grace period differs from the rules in many other countries, where a disclosure prior to filing generally means an inventor loses his or her rights. *See generally* Robert P. Merges, *Priority and Novelty Under the AIA*, 27 Berkeley Tech. L.J. 1023 (2012).

But does the advent of the AIA mean that what came before under U.S. patent law is now irrelevant? Hardly! Remember, the AIA only took effect on March 16, 2013. Any patent that was applied for before that date continues to be subject to pre-AIA law. Given typical pendency times, may patents applied for under the old law will continue to be issued well into 2018 and beyond. And of course these patents will not expire until 20 years after they were filed; in some cases, that means a patent is in force and full effect in early March of 2033 might well still be subject to all the provisions of pre-AIA law. (In fact, because of patent term extensions, some patents might be in effect well past 2033.)

The upshot is this: for many years to come, anyone who wants to know U.S. patent law is going to have to understand both the pre- and post-AIA law.
b. Prosecution Details

Lengthy prosecutions are particularly common in the pre-AIA "first-to-invent" system of priority when two or more inventors seek to patent the same invention. In those cases (some of which remain pending), the PTO must declare an "interference" between the competing applications and determine which inventor has "priority" to the patent right. (For a discussion of the complicated priority rules under the pre-AIA system, see Chapter 6, infra.) Interferences were an outgrowth of the U.S. policy of awarding the patent to the first to invent, and as result, they have been abolished under the AIA. (The only remaining vestige of them is a Derivation Proceeding under the AIA, which is an administrative trial to determine if the inventor stole or "derived" an invention from another.)

In the past, the United States kept all patent applications secret until they were issued as patents, and applications that never matured into patents remained permanently secret. In 1999, however, Congress amended the Patent Act to authorize the publication of many, but not all, applications after they have been pending for eighteen months. See the discussion on "Eighteen Month Publication of Applications" in Chapter 1.E.3.c, infra.

The normal prosecution of a patent application is best described as a series of negotiations between the examiner and the inventor or inventor's attorney (or the inventor's patent agent, a non-lawyer admitted to practice before the PTO). The process is helped by the specialization of the examiners, who are assigned to a particular technology, or commonly even one small corner of a particular technology. In a typical prosecution, the examiner might reject the claims in an application based on a number of sections of the Patent Act. In response, the applicant might narrow her claims or submit arguments to persuade the examiner that the initial rejection was improper. The applicant is entitled to have each application considered at least twice before the examiner imposes a final rejection of the application. See 35 U.S.C. §132. If her claims are finally rejected, however, the applicant faces a choice: She must decide whether to (1) do nothing and abandon the application; (2) appeal the examiner's second rejection to the Patent Trial and Appeal Board; or (3) continue the prosecution through continuation practice (which will require another fee). Choice (1) obviously needs little explanation. Choice (2), the appeal process, is explained below. Choice (3) requires some background.

Historically, an applicant whose claims were finally rejected but who wanted to continue the prosecution process was required to file a new application, which was treated as a continuation of the original application. Where the applicant made changes only to the claims, the continuation application was treated "as though filed on the date of the prior application." 35 U.S.C. §120. Where the applicant changed her disclosure, her new application was called a continuation-in-part or "C-I-P" application, which would preserve the filing date of the original application only if the changes to the disclosure did not add any "new matter." In both cases, the original application was referred to as the parent application. If two continuations are filed, the original application is the grandparent, and so on.
You might wonder why the PTO would require a new application if the new filing was treated as a continuation of the prosecution process. The answer here is simple: Each new application generates another fee and, as a practical matter, the PTO needs to collect fees to pay its examiners' salaries.

The alternative to requiring another application is simply to require another fee. In the 1999 amendments to the Patent Act, Congress authorized the PTO to do just that. Section 132(b) of the Patent Act now requires the PTO to allow continued examination of an application for a fee. Not surprisingly, the PTO set this fee to equal the basic filing fee for a patent application. See Request for Continued Examination Practice and Changes to Provisional Application Practice, 65 Fed. Reg. 50092, 50093 (2000).

An application that the examiner believes contains more than one invention will be subject to a restriction requirement. The applicant must then elect which of the multiple "inventions" to pursue in the original application. Non-elected claims then must be filed separately, along with an appropriate specification, in a divisional application. See 35 U.S.C. §121.

All of the decisions made during the examination process are subject to review both administratively and judicially. The Patent Trial and Appeal Board (PTAB or Board; formerly the Board of Patent Appeals and Interferences or BPAI) a component of the PTO, provides the main administrative route for appeal. It has the power to review all final rejections of an application by the examiners and therefore reviews all substantive issues of patent law—i.e., all decisions concerning the validity of the applicant's claims. See 35 U.S.C. §134.

If the examiner's decision is affirmed by the PTAB, the disappointed applicant may seek judicial review either by filing a petition for review in the Court of Appeals for the Federal Circuit, see 35 U.S.C. §141, or by commencing a civil action against the Director of the PTO in district court, see §§145 & 146. The former route is the most common, and many of the cases in this book are appeals taken from the Board to the Federal Circuit or the Court of Customs and Patent Appeals, which preceded the Federal Circuit and exercised a similar jurisdiction over the agency. Where the applicant chooses district court review (which rarely happens), the district court decision can be appealed to the Federal Circuit. Thus, sooner or later, both routes go...
through the Federal Circuit, and the decisions of that court may be appealed on writ of certiorari to the U.S. Supreme Court.\textsuperscript{6} In any action seeking judicial review of a PTO decision, the courts afford some deference to the agency’s decision. See Chapter 10.A, \textit{infra}.

These avenues for judicial review protect disappointed applicants for patents. For persons aggrieved by the PTO’s decision to grant a patent application, the law offers a different remedy—the right to challenge the patent in either post-patent grant proceedings or enforcement actions (see below).

Prosecution ends when either the PTO allows one or more claims or the applicant gives up ("abandons the application"). In the former case, the application will mature into a full-fledged patent, which is then summarized in the \textit{Official Gazette} and made available for the public to read.

\section*{3. Post-Issuance Administrative Processes}

PTO administrative proceedings can, however, continue after a patent has issued. For nearly two centuries, a patentee who comes to believe that her patent claims are either too broad or too narrow can seek a reissue of the patent. However, the law significantly restricts the ability of patentees to broaden their claims in reissue proceedings. See Chapter 10, \textit{infra}. In another form of post-issuance proceeding, which has been available since 1980, anyone (including the patentee) can seek a reexamination of a patent in certain circumstances.

In addition to these older post-issuance proceedings, the America Invents Act added three important new proceedings that allow patent challengers to challenge the validity of an issued patent. These are \textit{Inter Partes Review} (IPR), which is generally available throughout the life of a patent but which allows only certain types of validity challenges; \textit{Post-Grant Review} (PGR), which is available for only nine months after a patent issues but permits a much wider range of grounds on which to attack a patent; and "\textit{Covered Business-Method}" review (CBM), which has many similarities to PGR but is more widely usable than PGR when challenging "business method" patents. Importantly, issued patents do not enjoy a "presumption of validity" in these administrative proceedings, even though such a presumption is afforded in judicial proceedings. That difference alone is tremendously important in explaining why accused infringers often seek to challenged issued patents in these administrative proceedings rather than to raise challenges to patent validity in court. Because of their popularity with accused infringers, examiners cannot be appealed to the BPAI (generally, decisions on procedural matters) can be reviewed by the PTO Commissioner. See 37 CFR §1.181. The Commissioner also has authority to waive any of the requirements imposed by the PTO’s own regulations, but not those imposed by statute. See 37 CFR §1.183. Applicants disappointed with a decision of the Commissioner can also obtain judicial review of these decisions by filing an action in district court against the Commissioner. See, e.g., \textit{Baker Hughes Inc. v. Kirk}, 921 F. Supp. 801 (D.D.C. 1995). As in all patent cases, the Federal Circuit has appellate jurisdiction over the district court.

\footnote{6. Examiner decisions that cannot be appealed to the BPAI (generally, decisions on procedural matters) can be reviewed by the PTO Commissioner. See 37 CFR §1.181. The Commissioner also has authority to waive any of the requirements imposed by the PTO’s own regulations, but not those imposed by statute. See 37 CFR §1.183. Applicants disappointed with a decision of the Commissioner can also obtain judicial review of these decisions by filing an action in district court against the Commissioner. See, e.g., \textit{Baker Hughes Inc. v. Kirk}, 921 F. Supp. 801 (D.D.C. 1995). As in all patent cases, the Federal Circuit has appellate jurisdiction over the district court.}
infringers, the AIA’s new administrative procedures have become very important components of the patent system; a full discussion is provided in Chapter 10, infra.

4. Judicial Actions: Infringement and Declaratory Judgment Suits

Once a patent has issued, a lawsuit concerning the patent can arise in two ways. Either the patentee brings an infringement action against an accused infringer, or a potential infringer files a declaratory judgment action against the patentee. Infringement actions are straightforward (at least in theory). The patentee sues for the violation of the exclusive rights granted by the patent. A declaratory judgment action simply permits the parties to be reversed: A potential infringer may bring suit to challenge the validity of the issued patent immediately rather than wait until the patentee files suit for infringement. If successful, the plaintiff in a declaratory action receives a judgment declaring the patent invalid.

In both infringement and declaratory judgment actions, the accused infringer (or, in a declaratory judgment action, potential infringer) can challenge the patent as invalid. Allowing accused infringers to challenge the validity of a patent may seem a bit odd at first. After all, in issuing the patent, the PTO has already determined the issue in the patentee’s favor. But the prosecution is conducted on ex parte basis, with only the inventor represented. Permitting accused infringers to challenge patent validity is not only fair to infringers—it gives them some forum to challenge the PTO’s action—it also benefits the public at large by weeding out invalid patents. See *Cardinal Chemical Co. v. Morton Int’l, Inc.*, 508 U.S. 83, 100 (1993) (“emphasiz[ing] the importance to the public at large of resolving questions of patent validity”).

Although all validity issues decided by the PTO may be raised again in an infringement action, the Patent Act states that issued patents enjoy a “presumption of validity.” 35 U.S.C. §282. This presumption is generally understood to mean, at least, that the party challenging validity bears the burden of proof and that the courts should afford some measure of deference to the PTO’s decision to issue the patent. The presumption of validity is thus analogous to the deference that courts afford the PTO when they are reviewing the agency’s decision to deny a patent. The symmetry here makes sense: Whether the agency grants or denies a patent, the courts should respect the agency’s technical and administrative competence. Again, we will discuss such issues further in Chapter 10, infra.

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7. Prior to *Cardinal Chemical*, the Federal Circuit had routinely refused to review findings of patent invalidity in appeals where it determined that the patent was not infringed; instead, the court would simply vacate the lower court’s decision on validity. The practice was unpopular with patentees and accused infringers, both of whom often share an interest in resolving validity issues. Indeed, in *Cardinal Chemical*, both parties urged the Supreme Court to overturn the decision below. Agreeing with the parties, the Court emphasized that judgments of invalidity serve an important public function of eliminating invalid patents and that the Federal Circuit generally should decide validity issues on appeal even where the infringement issues are resolved in favor of the accused infringer.
In addition to the defense of patent invalidity, the accused infringer will usually argue that its products do not infringe the patentee’s claims. Infringement determinations present a host of complicated issues, which we shall treat in Chapter 8, infra.

Finally, all judgments by district courts in infringement and declaratory judgment actions are appealable to the Federal Circuit, and from there to the Supreme Court on a writ of certiorari.

E. Globalization and Patent Rights

The patent right granted under §154 of the Patent Act is explicitly limited to the United States, and patent rights granted by other jurisdictions are similarly limited. Thus, Japanese patents have force only in Japan; German patents, only in Germany; etc. In general, inventors must obtain a patent in every country where protection is desired.

The territorial limitations on patent rights are not surprising in light of the patent law’s mercantilist roots as well as more general assumptions of national sovereignty. Yet while patents are territorial, trade is global—and has been for centuries. Inventors thus have an incentive to seek worldwide protection for their inventions. The territorial limitations of patent law pose real difficulties in accomplishing this goal. During the past 125 years, inventors, patent law scholars and the international business community have sought legal innovations to overcome the difficulties posed by the territorial limitation of patent rights. These efforts have had a profound effect on international and U.S. patent law.

Below we describe three periods of change in international patent law. We conclude with a brief sketch of possible future developments.

I. The Late 19th Century: The Paris Convention

The 1883 Paris Convention for the Protection of Industrial Property (discussed also in Chapters 5 & 6, infra) was the first important international reform designed to help in obtaining global patent protection. The Convention contains some significant substantive reforms; for example, Article 2 provides that each Convention country must afford to the citizens of all Convention countries the same rights to obtain and to enforce patents as those afforded its own citizens. The Convention’s most important achievement, however, is procedural: For utility patents, the Convention creates a uniform one-year rule of priority commencing with the first patent application filed in any Convention country. During the one year period, the inventor may file patent applications on the same invention in other Convention Countries, and those subsequent applications will be treated for purposes of priority as if they had been filed when the first application was filed in a Convention country. See Paris Convention for the Protection of Industrial Property, Article 4, 21 U.S.T. 1583 (last revised, July 14, 1967), available at http://www.wipo.int/treaties/ip/paris/paris.pdf.