Chapter 1 Introduction to Canadian Patent Law

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1.1 Introduction

Patents protect inventions: either the functionality of a machine, a composition of matter or a process. In Canada, patent law is governed by the *Patent Act*, R.S. , c. P-4.

The Federal Government of Canada grants patents to inventors or assignees of inventors. Every patent grants to the patentee and its assignees for the term of the patent, beginning at the grant of the patent, the exclusive right, privilege and liberty of making, constructing and using the invention and selling it to others to be used.[1]

The right to exclude others is exercised by suing infringers or granting licenses. It is up to the patent owner to enforce the patent. It has been said that a patent is not a monopoly but rather is a "licence to litigate".

A patent is sometimes described as contract between the inventor and the government. In consideration for the inventor disclosing the invention in the patent and making it available to the public after the expiration of the patent, the government grants to the inventor the right to exclude others from making, using or selling the invention during the term of the patent.

1.2 Anatomy of a Patent

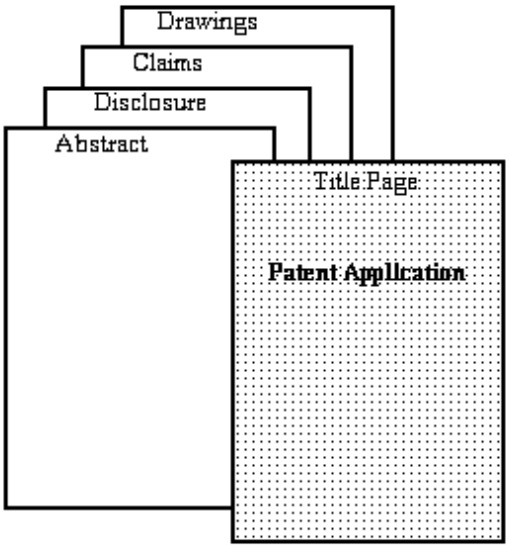
Every patent has a similar structure. The entire patent is called the "specification". The two main parts of the patent are the "description" (sometimes called the "disclosure") and the "claims".

The description and the claims serve two very different purposes:

> (a) the description tells the public how the make or use the invention when the patent expires; and
>
> (b) the claims describe what is not to be made or used during the term of the patent.

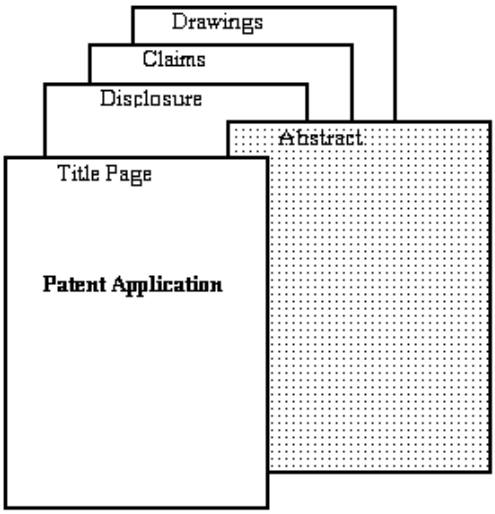
[1] *Patent Act*, s. 42.

1.3 The Title Page



The title page of a patent provides "tombstone information" concerning the patent: the title, the inventors, the person to whom the patent was granted, the application date, the priority date, the grant date and, for patents filed after October 1, 1989, the date that the patent application was "laid open" to the public.

1.4 The Abstract



The Abstract is the "headnote" of the patent, providing a summary of the invention and its use. It includes a summary of the disclosure and indicates the technical field to which the invention relates. It should describe the technical problem and the solution of the problem by the invention. Its purpose is to provide a succinct description of an invention so that a reader can decide whether the rest of the patent is of interest.

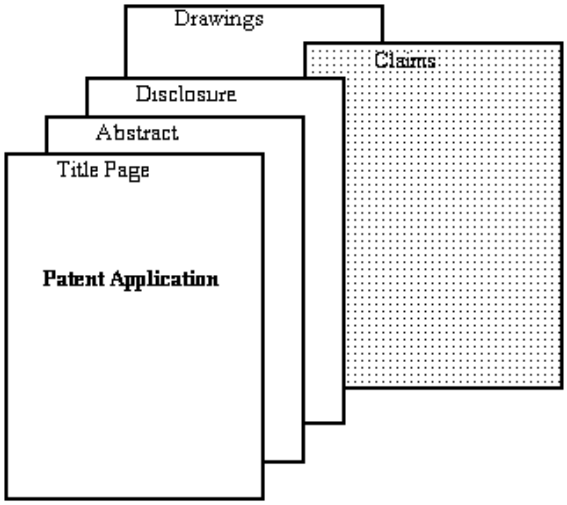
Abstracts are now available through on-line computer databases and are commonly used for searching the technical literature to see what areas are already patented.

The Canadian Manual of Patent Office Practice, which describes the procedures followed by the Canadian Patent Office, describes the purpose of the Abstract as follows:

1.4.1 CONTENT OF ABSTRACTS

> Applicants for patents are required to submit an abstract of the disclosure with each application to provide a synopsis of the invention disclosed. The abstract shall be a summary of the disclosure, and shall indicate the technical field to which the invention pertains. It shall be drafted in a way which allows the clear understanding of the technical problem, the gist of the solution of that problem through the invention and the principal use(s) of the invention. Where applicable the chemical formula that best characterizes the invention shall also be included. The text of the abstract should avoid patent jargon so that it may be readily understood by technicians, scientists, industrialists and other persons who are interested in obtaining information about issued patents. It should provide a means for quickly determining the nature of the disclosure so that the reader can decide whether a copy of the full specification would be useful to him. It should be a clear and concise condensation of the technical content of the disclosure.

1.4.2 The Claims



The claims define the monopoly in words.

A patent may have many claims, each defining the invention in different words and describing it broad or narrow functional language.

A typical claim has the following form: Preamble ... transitional phrase ... claim elements.

In Canada, claims are most commonly of the form having a brief preamble describing the apparatus or method in terms of its field of use, the transition "comprising", and followed by the claim elements (apparatus elements or process steps) which are like a checklist of the components of the claimed invention.

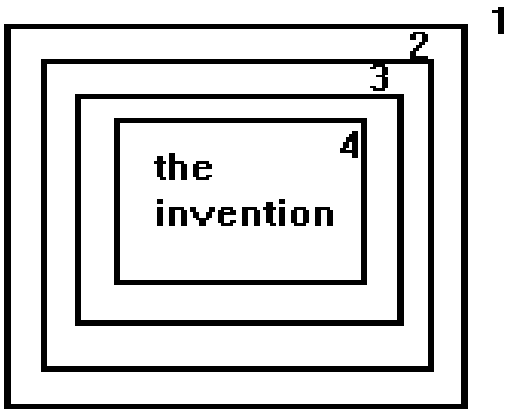
Claims are sometimes analogized as a series of "fences" surrounding and protecting the valuable invention. The claims define the metes and bounds surrounding the protected invention, much like surveying terminology defines the metes and bounds to a piece of land containing gold. The fences must be clearly defined in order to give the necessary warning.

Property which is not owned by the inventor must not be fenced in, otherwise the claim will be invalid as being broader than the invention.[2]

Claims are usually drafted with multiple, dependant claims. As such, they are like a set of nested fences, each fence surrounding a more particularized form of the invention. If one of the outer most fences fails[3], the inner ones remain to protect the invention. The larger fences are the broad claims; the narrowest fences are the narrow claims.

Another way of considering a claim is to describe them by use of a Venn diagram, a mathematical illustration used to identify "sets". The Venn diagram of some claims would be analogous to an aerial photograph of the "fences" surrounding the invention. The claims would be a series of sets and subsets, all including the invention at the centre of the sets. Anything that met the description of that set, would fall inside that claim and infringe it.

The invention can be described in a number of ways and therefore, there can be different sets of claims each with dependant claims, all protecting the invention at the core.



The broadest fence (#1 in the diagram at left) includes the most and would correspond to the broadest claim; the narrowest fence (#4) would include the least and would correspond to the narrowest claim.

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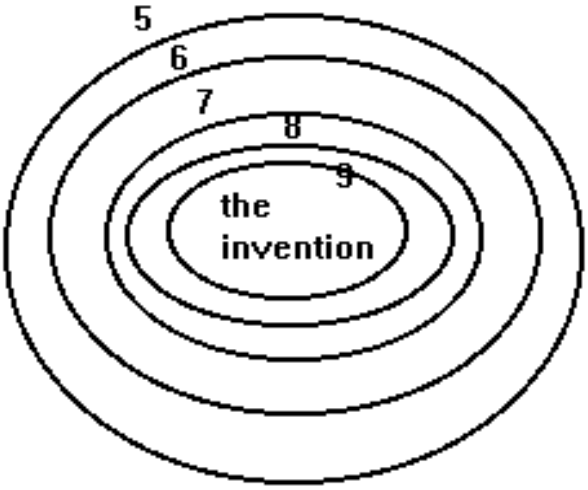
[2] *Minerals Separation North America Corporation v. Noranda Mines Ltd.* [1947] Ex. C.R. 306 (per President Thorson) at pp. 352-3 affirmed (1949), 12 C.P.R. 99 per Kelloch J. at p. 202 (S.C.C.).

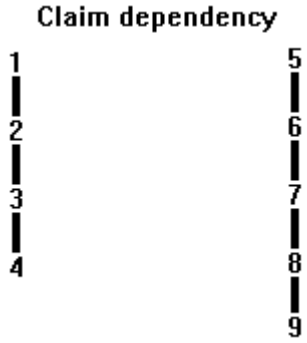
[3] See Chapter 6: Validity: Anticipation.



The invention can be described a number of ways. There can be different sets of claims, represented by the elliptical fences 5 to 9 at left, all of which protect the invention at the core.

A patent could have any number of these sets of independent claims; all of which would protect the invention.

A patent's claims can also be illustrated as a tree-structure, with branches indicating dependency.



The tree structure to the left illustrates the claims of the patent shown in the Venn diagrams above. Claim 2 is dependent on claim 1, claim 3 is dependent on claim 2, etc.

1.4.2.1 the form of the claim

In Canada, an invention can be claimed in one patent in more than one statutory class: ie. as an apparatus or a process or both. For example, an invention may be defined by a process claim, or as an apparatus which carries out the process.

A combination-type claim is one where the invention is described as a combination of elements or steps which achieve a desired result or interaction.

In some instances, the invention is best described by either an improvement claim (a claim where only the improvement to an existing apparatus or process is claimed), or European-style claim (one where the preamble describes the known prior art).

A claim for an apparatus should not contain a process step as an element; similarly a claim for a method should not contain an article as an element. Such claims are referred to as ones with "mixed elements". An example of the first type is:

> A digital signal processor comprising:
>
> > a) a first register for storing signal data,
> >
> > b) transferring said signal data to a second register...

You can incorporate a process limitation in a claim for an apparatus. For example:

> A computer comprising:
>
> > "means for storing signal data..." or
> >
> > "a first register for storing data..."

The clause beginning with the word "for" describes the function or process carried out by the apparatus.

A claim can recite a process step that contains a hardware or machine limitation. For example:

> A method for processing seismic data, comprising the steps of:
>
> > collecting the time-varying seismic detector output signals from a plurality of seismic sensors positioned in a cable ... [emphasis added]

In the latter example, the signals are collected from a recited structure. The structure is the hardware or machine limitation within the process step.

1.4.2.2 the preamble to the claim

Combination-type claims traditionally begin with a preamble that is designed to identify the class of invention and recite any prior art elements with which the invention co-operates.

The invention should be described in terms of statutory subject matter.

1.4.2.3 the body of the claim

In a combination-type claim, the invention is described as a combination of parts which interact to achieve a certain result or function. In formulating a combination-type claim, functional limitations may be expressed in "means-plus-function" format. Under U.S. practice, the court will interpret the recited "means" as including the preferred means disclosed in the specification as well as functional equivalents, subject to any express limitation in the disclosure.

1.4.2.4 dependant claims

After drafting independent claims in one or more statutory classes, the patent agent usually then drafts a number of dependent claims for defining subordinate features to those recited in the independent claims or to further define features and/or structure of the essential claim elements.

1.4.2.5 types of claims

A patent can be for an article, a method or a composition. An example of a method claim is:

> 1. The method of conditioning fabrics which comprises commingling pieces of damp fabric by tumbling said pieces under heat in a laundry dryer together with a substrate carrying a transferable conditioning agent, thereby to effect transfer of the conditioning agent to the fabric while being dried.

An example of an article or product claim is:

> 19. A fabric conditioning article comprising a flexible substrate carrying a normally solid fabric conditioning agent, said fabric conditioning agent comprising a material which has a softening temperature below the temperature of from about 120o F. to about 190o F. encountered in a laundry dryer to enhance thereby transfer of said fabric conditioning agent to fabrics contacted therewith, the weight ratio of fabric conditioning agent to flexible substrate being at least 0.25:1.

1.4.2.6 Jepson claim

In the United States, the Jepson claim is popular.

A Jepson claim recites the prior art in the preamble, uses the transitional phrase "the improvement comprising" and then recites the new elements or improvements to the prior device or method.

Rule 6.3 of the Patent Cooperation Treaty Rules requires that wherever possible, claims should be written in this form. It is not necessary to write them in this form in a P.C.T. application if you have filed your application in a country in which the form is not mandatory.

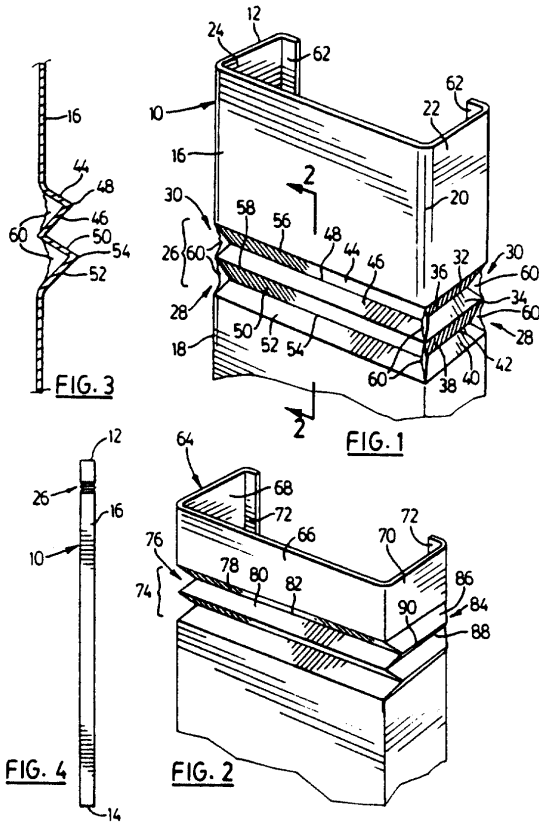


FIG. 3

FIG. 1

FIG. 4

FIG. 2

An example of a Jepson claim is:

In an elongate, integral metal stud having two ends, a main wall defined between two parallel side edges, and two lateral walls, each lateral wall having parallel side edges of which one is contiguous with a side edge of the main wall

the improvement comprising

the provision, intermediate the ends of the stud but adjacent to one end thereof, of an accordionated region where each of the lateral walls and main wall is formed to define at least one peak configuration including two flanks oblique to the main stud direction and converging to define an apex, the flanks being delimited by crease lines substantially perpendicular to the direction of stud elongation.

1.4.2.7 Markush claim

Markush claims are often used in chemical composition patents where a selection can be made from a "class" of claim elements.

An example of a Markush claim is:

> 1. A liquid dishwasher detergent emulsion having high alkalinity, high levels of sequestrant and high temperature stability, said detergent emulsion comprising:
>
> > i) 4 to 25% w/w of an alkali metal hydroxide suitable for use in a dishwasher;
> >
> > ii) 0.2 to 5% w/w of a low foaming free non-ionic surfactant;
> >
> > iii) 0.5 to 3% w/w of a polyacrylic acid suitable for enhancing sheeting action on non-porous surfaces;
> >
> > iv) 15 to 30% w/w of a potassium polyphosphate sequestering composition enriched in tripolyphosphate and comprising minimal amounts of ortho and long forms of polyphosphates to facilitate thereby solubility of said potassium polyphosphate in water;

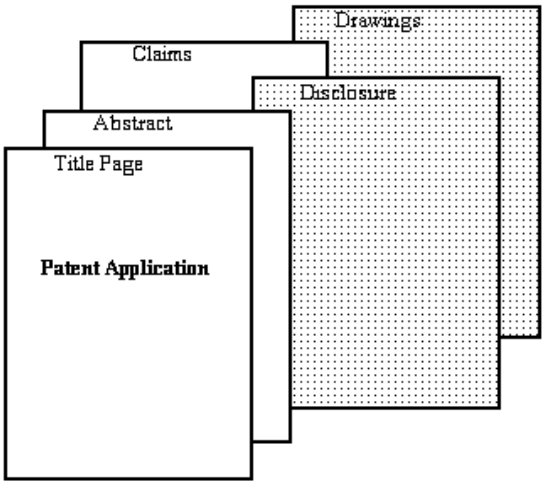
v) 2 to 6% w/w of a polymeric emulsion stabilizer for said free nonionic surfactant, the polymeric emulsion stabilizer being a chemically associated polycarboxylic acid polymer and a nonionic surfactant formed by polymerization of said nonionic surfactant with a polymerizable reactant selected from the group consisting of acrylic acid, polyacrylic acid, copolymers of acrylic acid and an ethylenically unsaturated polycarboxylic acid or an anhydride thereof, copolymers of ethylenically unsaturated polycarboxylic acid or anhydride thereof with a non-carboxy containing ethylenically unsaturated monomer, said nonionic surfactant and said reactant being polymerized in an aqueous media;

vi) 0 to 15% w/w of a sequestering agent to enhance hard water sequestering characteristics of said potassium polyphosphate; and

vii) water to make up the balance of composition to 100% w/w.

2. A liquid dishwasher detergent emulsion of claim 1 wherein said alkali metal hydroxide is selected from the group consisting of sodium hydroxide, potassium hydroxide and mixtures thereof.

1.4.3 The Description (Disclosure)



The nature of the invention must be defined in the disclosure and the manner in which the invention is to be carried out, must be described. In the case of a machine (for example, a computer), the best mode of operation must be described. In the case of a process (for example, the implementation of an algorithm by computer process), the necessary sequence of steps must be explained for distinguishing the invention from the prior art.[4]

The description is like a manual that accompanies a kit such as a home barbecue. In the case of a patent for an apparatus, it includes a parts list identifying the parts needed to make the apparatus and assembly instructions explaining how to put the parts together. This description is used as a cross-reference to a series of drawings bearing numbers corresponding to the parts

[4] *Patent Act*, s. 27(3)(c).

illustrating how the device is put together. Operating instructions explain how to use the device in the best manner known.

The description must describe the invention and its uses contemplated by the inventor.[5] The description must be clear, accurate, simple and easy to understand by the person or persons to whom the patent is directed, namely the skilled workers in the relevant field (See Claim Construction).

1.4.3.1 the body of the description

The disclosure is usually divided into the following sections;

(a) the Area of the Invention,

- a general description of the field of the invention;

(b) a description of the prior art and their problems,

- what solutions existed in the past to similar problems and what problems were not overcome by the prior art;

(c) the Object of the Invention,

- this describes the desired results of the invention. A statement of the object of the invention is not mandatory and is sometimes dangerous to include because all claims must meet the object or they will fail for being too broad;[6]

(d) the Consistory Clause,

- a generalized description of the invention. Usually the language from the broadest claim is restated to make the description consistent with the broadest claim;

(e) the description of the preferred embodiment of the invention,

- an example of an implementation of the invention. Usually the best version of the invention known at the time that the patent application was filed. It is described with reference to the drawings;

(f) a description of further embodiments; and

(g) a generalised statement that the embodiments are illustrative and not limiting,

- an attempt by the inventor to let everyone know that the monopoly is not limited to the embodiment shown in the patent.

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[5] *Patent Act*, s. 27(3)(a).

[6] See Chapter 8: Validity: Latent Defects.

1.4.3.2 the drawings

The disclosure must also refer to any drawings forming part of the application. Many patent agents begin sketching informal or conceptual precursors to the formal drawings while drafting the claims and then finalize the drawings while drafting the description.

If certain information that is not otherwise publicly available is needed in order to make or use the invention, then it must be included in the description or else the patent will be declared invalid for failing to describe the best mode of operation of the invention or its necessary sequence of steps.[7]

1.4.3.3 Example of a Skeleton of a Patent

The following is a skeleton for a typical patent application. What is written in italics would be replaced by that feature relevant to the invention.

1.4.4 TITLE

1.4.4.1 Abstract

a) A name of apparatus includes inventive features.

Field of the Invention

This invention relates in general to *type of apparatus* and more particularly to *title of invention*.

b) Background of the Invention

RECITE NATURE OF THE PROBLEM ADDRESSED BY THE INVENTION

Prior art *name of apparatus* have been devised to address to the problems cited above. For example, cite *publicly available applications, patents, devices, papers*.

Thus a *type of apparatus* which *set out improved characteristics* is desirable.

c) Summary of the Invention

One aspect of the present invention is to provide an improved *type of apparatus*.

In accordance with one aspect of the present invention, there is provided *consistory clause*.

Conveniently,

Preferably,

Advantages of the present invention are: *list elements from the broadest claim*. An advantage of an embodiment of the present invention is *list from dependent claim*.

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[7] *Ductmate Industries Inc. v. Exanno Products Ltd.* (1985) 2 C.P.R. (3d) 289 (F.C.T.D. per Reed J.) at p. 299-300.

d) Brief Description of the Drawings

A detailed description of the preferred embodiment(s) is(are) provided herein below with reference to the following drawings, in which like numbers refer to like elements. The drawings are:

Figure 1, in a *describe view*, illustrates a *type of apparatus* in accordance with an/the preferred embodiment of the present invention;

Figure 2, in a *describe view*, illustrates the *type of apparatus* of Figure 1.

e) Detailed Description of the Preferred Embodiment

Referring to Fig. 1, there is illustrated in a *describe view*, a *type of apparatus* in accordance with an/the preferred embodiment of the present invention. The *type of apparatus* includes *describe parts in hierarchical fashion*.

In Fig. 2, the type of apparatus of Fig. 1 is illustrated in a describe view. Fig. 2 shows *describe parts in hierarchical fashion*.

In operation, the *type of apparatus* can *explain improved operation of device*. How this is achieved is explained below with reference to Fig. *list figures*.

In summary, a *** is provided with *** for ***.

Other variations and modifications of the invention are possible. For example, set out *alternative not described above*.

While one (or more) embodiment(s) of this invention has (have) been illustrated in the accompanying drawings and described above, it will be evident to those skilled in the art that changes and modifications may be made therein without departing from the essence of this invention. All such modifications or variations are believed to be within the sphere and scope of the invention as defined by the claims appended hereto.

[start new page here]

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

[Claims go here.]

1.5 (Brief) History of the Patent System

"Originally the King granted monopolies pretty lavishly, but the Courts of Common Law refused to recognise them unless they were in respect of new inventions. The Courts of Common Law held that the King could not monopolise, and give to a particular person, manufactures which were already the trade of inhabitants of the realm. That principle was finally conceded, and in the Statute of Monopolies it was admitted that the monopolies were void excepting under those circumstances. But still the King had the right to grant monopolies for inventions, and availed himself of it, but I regret to say that for the first century the grants were couched in very vague terms. They were usually expressed as being for inventions for doing so and so, and there was little definition of what the invention actually was until about 1700, when a very beneficial change was made. The King granted his monopoly, for a mere name. In this particular case the invention would have been called "Improvements in the manufacture of boots," and the grant of the Patent would be to Mr. Brooks for "Improvements in the manufacture of boots"; and any improvement in the manufacture of boots might be claimed to be the improvement to which the title referred, prior to the change of which I have spoken. But after 1700 in order to protect the public the Crown granted the Patent subject to a condition, and that condition is the foundation of modern Patent law. It was in the form of a proviso obligating the inventor "by an instrument in writing under this hand and seal particularly to describe and ascertain the nature of the said invention, and in what manner the same is to be performed, and cause the same to be enroled within six calendar months". From that time the inventor had to describe and ascertain the nature of the invention, and in what manner the same was to be performed; otherwise his Patent lapsed at the end of six months. The grant was still obtained for the mere title; and the definiteness was obtained by the Specification which was subsequently filed. As Patents became more important, and therefore the rights under Patents were more keenly contested it became obvious that this proviso provided for two very different things, the nature of the invention - and very little thought shews that this means the delimitation of the invention - and the manner in which the same is to be performed. The first was necessary to define the monopoly and the second was necessary to secure that the public was not defrauded by the patentee, because the consideration for granting a monopoly for 14 years is the free use by the public of the invention at the end of two things - the delimitation of the invention, and full practical directions how to use it - are in their nature almost antagonistic. As it is the duty of the inventor to give the fullest practical information to the public he is bound to put in, if, for instance the invention is a process, quantities and times which are the best he knows. But it would be very cruel to hold him to the invention when he carried out only with those best quantities and times, because a person could then take his invention in substance if he did not take it in the quite the best way, and the value of the grant would be practically nothing. Hence inventors, in their own protection took to introducing into their Specifications language intended to distinguish between that which was there for the practical information of the public, and that which was there for the delimitation of the invention. Correct delimitation was of the greatest possible importance to the inventor, because if his Patent covered something which was old the Patent was wholly bad. At the same time there was the danger of confining himself to a mere outline which gave delimitation, but did not tell the public the best way within those limits of performing his invention. The one duty required him to state his invention in its most general form, and the other duty required him to state it in its best and therefore in a very special form. Out of that has arisen the practice, which originally was perfectly optional of having a separate part of the Specification primarily designed for delimitation. That is what we call the Claim.

> *British United Shoe Machinery Company Ltd* v. *A. Fussel & Sons Ld.* (1908), 25 R.P.C. 631 (per Moulton, L.J.) at pp. 649-651.

1.6 Example of a Patent – The Sailboard Patent

The Canadian Sailboard Patent: Letters Patent No. 912,921

(11) (24) No. 912921

(45) ISSUED Oct. 24, 1972

(52) CLASS 114-12
C.R. CL.

(19) CANADIAN PATENT

(54) WIND-PROPELLED APPARATUS

Henry H. Schweitzer, Pacific Palisades, California, U.S.A.,
and James R. Drake, Santa Monica, California, U.S.A.

(21) APPLICATION No. 061,852
(22) FILED Sep. 12, 1969

(30) PRIORITY DATE

No. OF CLAIMS 10

The field of art to which the invention pertains includes the field of ships, particularly sailboats and iceboats, and the field of land vehicle sail attachments.

Sail propulsion has been suggested as a motive means not only for boats and iceboats, but also for such watercraft as surfboards and land craft such as skateboards and sleds, i.e., generally any lightweight small craft. Typically, a sail is provided on a mast that is rigidly secured to the craft in a vertical position or else the sail and mast are entwined in a network of riggings and control mechanisms.

The general effect of providing a sail on a normally sail-free vehicle is to convert the vehicle into a water- or land-boat. Thus, by rigidly securing a sail to a surfboard, the feel of the surfboard and enjoyment as such is lost and the skill normally required to control it is no longer needed. Instead one obtains the speed and feel of a light sailboat and needs substantially only those skills appropriate to control a sailboat. The same "denaturing" occurs with other vehicles modified to bear a sail.

A further problem arises when a sail is fitted to a vehicle that does not have high roll stability in that sudden or excessive winds can overturn the vehicle.

A need therefore exists for safely providing wind-propulsion means for a vehicle not normally so equipped but which means preserves the original ride and control characteristics of the vehicle.

The present invention provides wind propulsion means for a vehicle that adds new dimensions of wind responsiveness and speed and yet enhances the vehicle’s normal ride and control characteristics to greatly increase the enjoyment obtained therefrom. Wind-propelled apparatus is provided comprising vehicle body means adapted to support a user and wind-propulsion means pivotally associated with the body means and adapted to receive wind for motive power. The position of the propulsion means is controllable by the user and is substantially free from pivotal restraint in the absence of such control.

In particular embodiments, the propulsion means is connected to the vehicle body by means of a universal joint, e.g. a joint having three axes of rotation, or other such joint to enable the propulsion means to be substantially free-floating in the absence of user control.

The wind propulsion means can comprise a spar pivotally attached to the vehicle body and a sail on the spar. Means are provided to allow the user to grasp the sail on one or both sides thereof. Thus, a boom is provided laterally disposed on the spar to hold the sail taut and provide a hand-hold. In particular embodiments, a pair of booms is provided arcuately connected athwart the spar and securing the said therebetween.

The invention can be used on watercraft, iceboats and land craft. It can be used on small yachts, runabouts, canoes, rowboats and other such craft, but is most advantageously used on small and lightweight vehicles such as surfboards, iceboats, skateboards and sleds. Leeboard means can be provided for a watercraft of low roll stability such as a surfboard. The term "leeboard" is means to include center boards and dagger-boards, as these terms are known to the sailing art, as well as other projections from the body of the craft, planar or otherwise extending into or onto the water for stabilization.

The present invention allows essentially all of the steering and control to be accomplished through the sail; i.e. no rudder or other steering mechanism is needed, although such need not be excluded. One may accelerate, turn and tack merely by manipulating the sail. However, because the said is pivotally unrestrained, it must be held by the user with the user relying on his skill with the vehicle for balance. In the event of sudden or excessive winds, the user need only release the sail and it will immediately fall

in any direction, freeing the vehicle from the propulsive force.

FIGURE 1 is a perspective view of a wind-propelled apparatus according to an embodiment of this invention, obtained by modifying a surfboard with a sail, spar and boom therefor and leeboard;

FIGURE 2 is a sectional view, on line 2-2 of FIGURE 1, of a universal joint used for pivotal motion of the sail;

FIGURE 3 is a sectional view, on lines 3-3 of FIGURE 1, of the spar-side juncture between the booms; and

FIGURE 4 is a sectional view, on line 4-4 of FIGURE 1, of the clew-side juncture between the booms.

Referring to FIGURE 1, a wind-propelled apparatus is shown, including a surfboard 10, spar 12, triangular sail 14 and booms 16 and 18. The surfboard 10 has a dagger-board 20, as leeboard, inserted through an opening 22 provided in the body of the surfboard 10 and projecting obliquely from the bottom 24 thereof. A top portion of the dagger-board 20 extends somewhat beyond the top surface 28 of the surfboard 10 to provide a platform 29 for pivotal attachment of the spar 12 as will be more fully described below.

The spar 12 is a stout, rounded, elongated fiberglass shaft which, in this case, is hollow for lightness but may be of solid wood or metal, and has a cylindrical wood base 27 wedged through its lower end. The spar 12 serves as a pivotal mast for the sail 14 and is inserted within a hem 30 tapering along a long edge 31 of the sail 14 toward the top thereof. The bottom of the sail 14 is secured to the spar 12 by a rope 32 threaded through an eyelet 34 in a lower edge of the sail 14 adjacent to the spar 12.

Referring to FIGURE 2, the spar 12 is connected to the dagger-board platform 29 by means of a three-axis universal joint 36. The joint 36 is made completely of stainless steel and is attached to the spar by means of brace plates 38 and 40 held on opposite sides of the spar base 27 by wood screws 37. The brace plates 38 and

40 have extended portions 42 and 44, respectively, somewhat below the spar base 27 and disposed on opposite sides of a short section of stainless steel tubing 46. A one-quarter inch diameter headed pin 48 extends through holes 50 and 52 in the brace plate extensions 42 and 44 and is rotatably secured by a cotter pin 54 inserted through a cotterway 56 in the headed pin 48.

A U-shaped clevis 58 of stainless steel sheeting is disposed on the tubing 46 so that its sides 60 (only one of which is shown) lie below and transverse to the brace plate extensions 42 and 44. A ¼-inch diameter headed pin 62 (shown in cross-section in FIGURE 2) extends through holes 64 in the clevis sides and in the tubing 46 and is rotatably secured by a cotter pin (not shown) through a cotterway in the headed pin 62.

A three-inch long, ¼-inch diameter round head machine screw 68 rotatably secures the clevis 58 to the dagger-board 20 by extending through a hole 70 in the base 71 of the clevis 58 and from there through a washer 72 and underlying nut 74 and locknut 76 set in a mortise 78 in the dagger-board platform 29. The machine screw 68 holds the base of the clevis 58 with sufficient play to allow sliding rotation of the clevis 58 against the washer 72.

Referring to FIGURES 1 and 3, a pair of curved, laminated wood booms 16 and 18 are provided about four feet from the surface 28 of the surfboard 10 and are arcuately connected at both their ends. At the spar-end, the booms are connected together and to the spar 12 by a loop of one-inch wide webbed tape 80 encircling the spar 12 through a crescent shaped opening 82 in the said hem 30. The tape loop 80 has brass rings 84 at its ends held in place by stitches 86 through the looped tape and which secure the tape 80 to the booms 16 and 18 by engagement with brass hook fittings 88 secured to the booms 16 and by wood screws 90.

Referring to FIGURES 1 and 4, the booms 16 and 18 are provided at their clew ends with outhaul openings 92 and 94, respectively, and jamb cleats 96 and 98, respectively, which are secured to the booms 16 and 18 by screws 99. An outhaul 100 is threaded from the jamb cleat 98 of one boom 18 through the outhaul opening 94 in that boom 18, through a reinforced opening 102 in the sail slew 104, through the outhaul opening 92 in the second boom 16, looped through both outhaul openings 94 and 92 and from there to a second jamb cleat 96 on the other boom 16. The outhaul 100 is then pulled taut and secured by the second jamb cleat 96 to hold the sail 14 between the booms 16 and 18.

In operation, the user stands on the top 28 of the surfboard 10 behind the point where the spar 12 is attached by the universal joint 36 and grips one or the other of the booms 16 and 18. If he were going before the wind and wished to make a turn, he would tilt the sail 14 forward, thus applying the force of the wind to the nose of the surfboard 10 and causing the board 10 to turn to the left or right depending on which side of the sail 14 was windward. On the other hand, if he wanted to come about into the wind for the purpose to tacking, he would pull the sail 14 backwardly to apply the force of the wind to the rear of the board 10, causing the rear of the board 10 to move so as to come into the wind. As he is into the wind, he may complete the tack by merely walking in front of the sail 14, grasping the boom on the other side and setting the sail 14 so that the wind captures it and the board 10 is then on its new course. The sail may be maneuvered forward and backward for speed control.

In the event that a sudden surge of wind threatens to capsize the surfboard 10, the user may merely release the sail 14 and it will fall free into the water, completely removing the danger. The sail 14 is provided at its spar 12 end with a rope 106 so that the user can readily pull the sail 14 back into sailing position.

It will be understood that modifications and variations may be effected to adapt the foregoing apparatus for the expediencies of particular applications without departing from the scope of the novel concepts of this invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. Wind-propelled apparatus comprising body means adapted to support a user and wind-propulsion means pivotally associated with said body means and adapted to receive wind for motive power for said apparatus, said propulsion means comprising a mast, a joint for mounting said mast on said body means, a sail and means for extending said sail laterally from said mast, the position of said propulsion means being controllable by said user, said propulsion means being substantially free from pivotal restraint in the absence of said user, said joint having a plurality of axes of rotation whereby said sail free falls along any of a plurality of vertical planes upon release by said user.

2. The apparatus of Claim 1 wherein said propulsion means is adapted to be hand-held by said user but is otherwise substantially free from pivotal restraint.

3. The apparatus of Claim 1 including means for said user to hold said sail.

4. The apparatus of Claim 1 wherein said sail extending means comprises a boom laterally disposed of said mast to hold said sail taut and adapted to provide a hand-hold for said user.

5. The apparatus of Claim 1 including means adapted to enable said user to grasp either side of said sail.

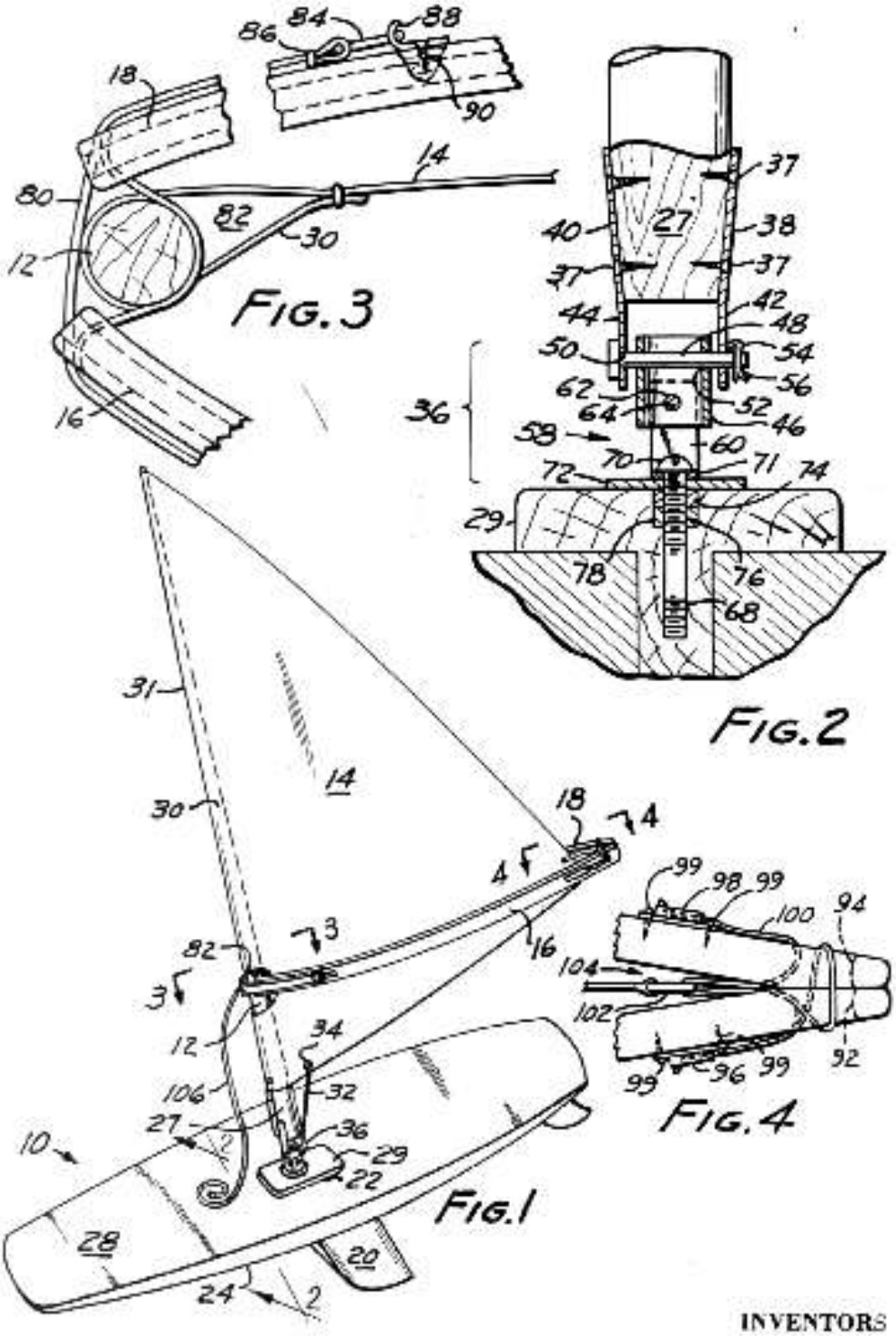
6. The apparatus of Claim 1 adapted as a watercraft.

7. The apparatus of Claim 6 including water stabilizing means associated with said body means.

8. The apparatus of Claim 6 including leeboard means associated with said body means.

9. The apparatus of Claim 1 wherein said propulsion means is substantially the sole means for changing the direction of travel of said apparatus.

10. The apparatus of Claim 4, wherein said boom comprises a pair of boom members arcuately connected athwart said mast and securing said sail therebetween.



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