

# MEET YOUR NEW NEI

Innovation and invention aren't usually associated with the insurance business, but a variety of new patents and patent applications are changing all that. **BY TOM BAKOS**

**T**HE INSURANCE INDUSTRY has pretty much had a keep-up-with-the-Joneses marketing and product development kind of philosophy: Hey, that company's got a variable annuity with a death benefit that guarantees a return of all premiums paid even if investment performance is poor.

Oh yeah? Does it guarantee a death benefit not less than the premiums accumulated at 5 percent? Well, that's okay but our variable annuity ratchets the death benefit up every year to the highest fund value and guarantees it will never be less than premiums accumulated at 6 percent!

So how long does your level term policy guarantee premiums? Does your long-term care policy cover treatment in a Spa? Do you offer automobile insurance to people who don't know how to drive?

Looking over the fence isn't the best way to do market research. There is another, better way to meet your new neighbors and find out what kinds of innovation you may be facing in the next few years. Problem solvers in the insurance industry, innovators from within and without, are making greater use of business method patents to protect their inventions from nosy neighbors who might still be playing the one-upmanship game.

Patents, as you may have read, grant a limited period of exclusivity to the inventor in exchange for the inventor describing in a patent how to make and use his or her invention. So, don't go thinking you can put in an artificial grass driveway like your neighbor's. He might have a patent.

A much better way to do product development research is to pay attention to what's going on in back rooms, not back yards. True market innovators don't add bells and whistles, they move from steam, to diesel electric, to magnetic levitation. And they tell you exactly what they're doing in their patents.

## Background

Since the United States Patent and Trademark Office (USPTO) first opened in 1790, more than 7 million patents have been issued. Just in the first half of 2006 the patent office has issued 99,427 patents for all sorts of inventions. In addition, 143,724 new patent applications have been published. None, as far as I can tell, are for plastic grass driveways, so feel free to go wild with that idea.

The insurance industry would be most interested in patents classified as business methods, which is class 705, and more

to the point, business method patents in subclass 4, which are insurance business method patents. The table shows the numbers—not big numbers—but think of it this way: Isn't it better to be a big fish in a small pond?

Of the 21 patents published so far this year, 10 are in the life and health practice area, 5 are property/casualty, and 6 might be applied in all areas. Of the 91 patent applications published, 49 are life and health, 35 are property/casualty, and 7 address administrative problems and might be useful in all insurance practice areas.

As the table indicates, patent activity jumped shortly after 1998. This was a result of the release of pent-up ambition created by the *State Street Bank vs. Signature Financial* decision in the Federal Circuit Court of Appeals, which gave legitimacy to business method patents.

And activity is again picking up. They're still small numbers, for sure, but doubling the patent production in subclass 4 to project totals for the whole of 2006 would give us 42 new patents and 182 new published patent applications. Wow! Using the magic of mathematics, this produces an impressive 40 percent increase over the 30 patents issued in 2005, which were an equally impressive 30 percent increase over 2004. A projected 182 patent applications for all of 2006 would produce a 23 percent increase over the 148 in 2005.

Patent applications are, generally, published 18 months after they're filed. So, to throw a bit of a scare into you, this means that there are always at least a couple hundred patent applications that have been filed with the patent office and aren't yet public.

## Business Methods?

Insurance is a process. Actually, it's a process of processes. There are four categories of patentable subject matter in the United States: You can get a patent on a machine, an article of manufacture, a composition of matter, or a process.

In general, insurance is a process that transfers the financial consequences of the occurrence of a contingent event from one entity to another for a premium. The business of insurance involves the processes of pricing, illustration, underwriting, administration, and claims, among others. In addition, it may even involve finding, recognizing, or defining insurable contingent events and creating a market for insurance products where no market had existed. For example,

# GHBORS

AIG is the assignee of a recently issued patent (US 7,050,985) for an insurance invention that funds the decommissioning of nuclear power plants.

There may even be business methods devised that create ways for insurance coverage to be provided that don't involve traditional insurers. These securitization methods involve investors willing to risk loss of assets (e.g. US 5,704,045) in exchange for the possibility of big gains. Often, the investor's business may involve gains if the securitized risk occurs. Thus, the patented securitization business method creates a hedging mechanism that moderates gains and losses to the investor, regardless of whether the risk event occurs. In other words, the investor's business thrives if the insured event occurs, and the investor's securitization activity produces a profit if the insured event doesn't occur.

So let me introduce you to some of your new neighbors.

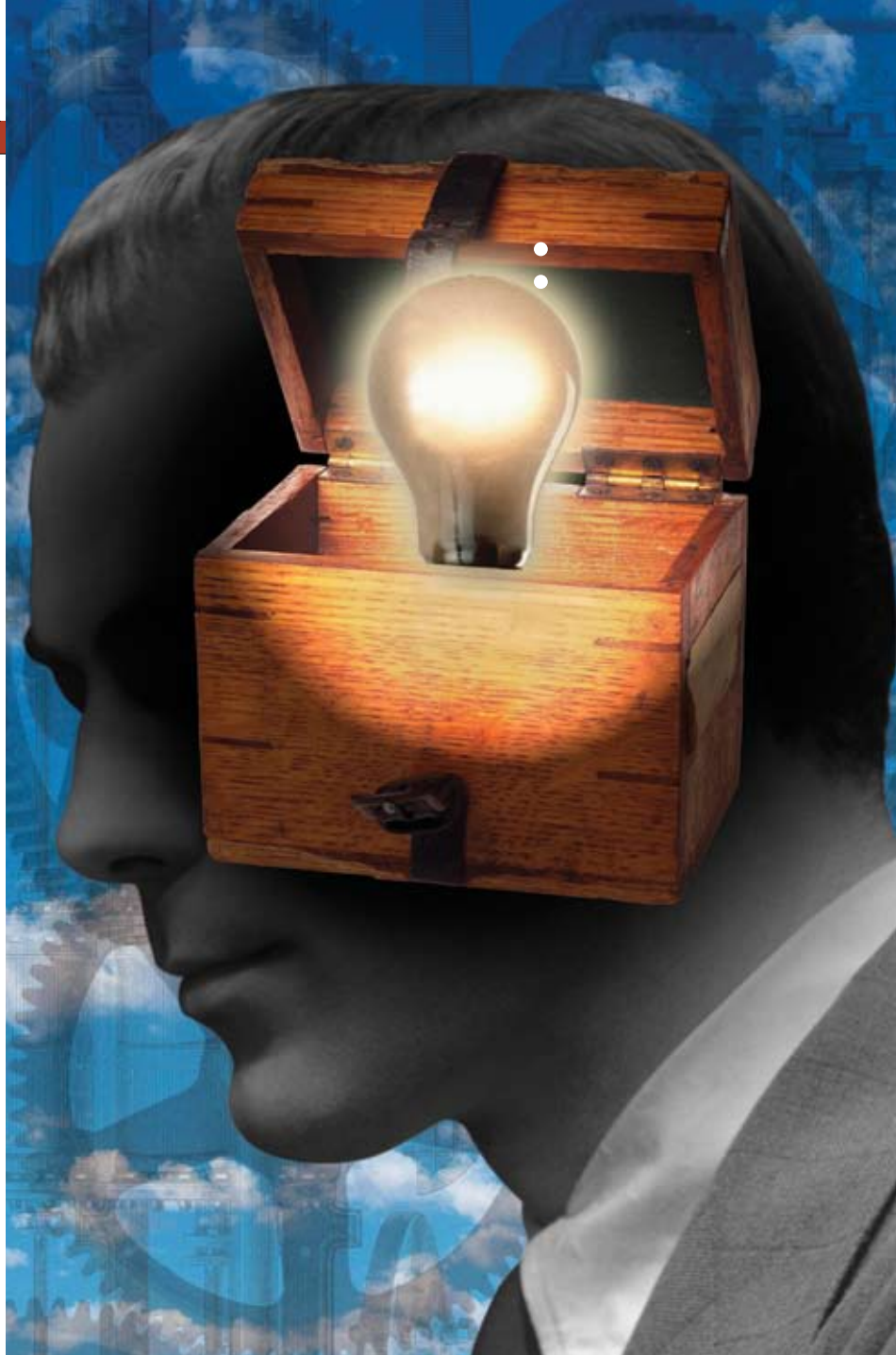
## High-Tech Underwriting

First, you may have heard of Progressive's Trip Sense™ auto insurance program that provides drivers with at least a 5 percent discount, and possibly up to 25 percent, if they're willing to plug a TripSensor into their automobile's diagnostic port and upload the data it collects to Progressive so that Progressive can underwrite on the basis of their actual driving patterns. (Take a look at <https://tripsense.progressive.com>.)

This innovative approach to underwriting auto insurance is protected by a number of issued patents and pending patent applications. The Progressive patents are way broader than what they have introduced into the market. So far, the driving patterns recorded relate only to how much and how fast you drive, but the potential is much greater than that. Reading the patents provides a great deal of insight into what this invention's potential is.

As equipment costs go down and markets begin to accept what many think is a privacy intrusion, good drivers, who like sitting on big fat wallets and who realize that their driving patterns reveal nothing sinister about them, may start to opt in. Bad drivers, of course, with bad driving habits they don't want to expose to Progressive's new underwriting engine, will opt to go to auto insurers who aren't as selective. Or they'll choose Progressive's more traditional auto insurance products.

But if the Progressive approach catches on, auto insurers who



use traditional underwriting methods—which they think are just as effective—may see their pool of applicants reduced by the very good drivers who see value and reward in Progressive's approach. It's kind of like when life insurance companies began to offer non-smoker discounts. An insurer was competitively disadvantaged if it didn't make the smoker/nonsmoker distinction itself. Nonsmokers, of course, would quickly see the advantage in nonsmoker rates and the non-distinct premiums would quickly default to a smoker class as they left.

Even if you're not inclined to use a TripSense device to get a discount on insurance, other companies offer a similar device that measures the driving habits of your teenage child—information often worth having. Since the device plugs into the diagnostic port under your steering wheel, your car must be a 1996 or later model year.

The Progressive approach to individualized automobile insurance underwriting has attracted global interest and they're not the only players in the field. Norwich Union in the United Kingdom has a similar program called Pay As You Drive™. Its program goes a bit further than Progressive's; it uses GPS technology to base auto insurance rates on how often, when, and where you drive.

### **New Kid on the Block**

An entirely new insurance market is being created by two inventors, David and Steve Schuver, who have patent applications pending (see US 2005/0289049) for "Insurance for a security" or securities insurance. They've developed a way for an individual investor to insure the value of a security against a drop in its value.

The Schuvers don't work in the insurance industry. They're inventors with a number of patents and pending applications related to footwear. They are also insurance consumers who recognized a need that wasn't being met. You never know where your competition is going to come from. In an "ah ha" moment (or perhaps it took a little longer than that) they devised an insurance process that would protect a security "against a change in the value of the security."

I'm named as an inventor along with the Schuvers on a continuation (see US 2006/0143114) of the earlier application, which is a method for determining a premium for a securities insurance product. It's always helpful to have an actuary around when you want to calculate a premium.

Securities insurance, when it's brought to market, will allow ordinary investors to limit their market exposure to market fluctuation over some period of time, either on single securities or an entire portfolio. This is something like buying a put, except it's not a security itself, as a put is, and it doesn't involve the hassle, expertise, or permissions usually required to participate in the options market.

An ideal application may see investors who trade stocks through an internet brokerage agency being able to simply check off a box to buy insurance for a few basis points that would protect their downside risk or bring the downside risk up to their risk tolerance level. The Schuvers are making good progress on bringing a product based on their patent pending business method to market.

Securities insurance is, of course, a new market for insurance and pushes up against a lot of insurance regulation. Insurance regulation tends to be reactive rather than anticipatory. As many inventors find out, invention isn't the hard part. Fundamentally new insurance approaches often butt up against existing insurance law and regulations that treat them, essentially, like uninvited guests. Fortunately, insurance law has a number of "all other" categories, so finding a good fit is usually just a matter of time.

### **Getting What You Pay For**

Take, for example, long-term care insurance. Recognized as a valuable type of benefit to have around, laws and regulations were amended to accommodate it. Some of the invention going on in the life and health practice areas addresses long-term care insurance needs.

One current problem in long-term care is the cost of the coverage. Mike Gamble and Jerry Wilson have patented a process (US 6,014,632) that tailors the daily benefit (subject to minimum and maximum benefit levels) to the severity of the insured's medical condition and the level of care this condition requires. It does this by basing a patient categorization approach on the Resource Utilization Groups (RUGs) co-developed by Bryant E. Fries, Ph.D., Institute of Gerontology, University of Michigan and his colleagues. The benefit design creates a product in which premium dollars are used more efficiently by not requiring the insured to pay for coverage or benefit levels he doesn't need.

Long-term care products have been undergoing a lot of change in terms of adding bells and whistles and testing new ways to fund the benefit by combining long-term care with other accumulation-type insurance products. This patented approach is still looking for a home in this ever-changing environment, but the inventors are making progress in finding interested parties to talk to about the concept.

### **Survival Risk Insurance**

Life settlements, or viaticals, define a secondary market for life insurance policies that's been growing in recent years and getting more attention. This market also creates a new insurance risk.

Typical life insurance is designed to provide a financial (death) benefit primarily intended to cover the financial consequences of an earlier than expected death. On the other hand, payout annuities are designed to provide financial guarantees against the risk that an annuitant will outlive his or her retirement savings—that is, live longer than expected.

Life settlements and other novel insurance sales concepts use life insurance death proceeds as the funding source. If life insurance pools are large enough and valued properly, then the actual deaths from the pool will match closely the expected deaths anticipated in the funding plan. This is a basic insurance principle. However, in life-settlement and corporate-owned life insurance (COLI) situations, the pool size is rarely large enough to rely on the law of large numbers, and the investment participants in these types of deals are generally risk averse. The insurance risk faced by investors in these life insurance pools is that the insured lives, on average, will last longer than expected.

At one time, a Lloyd's of London syndicate provided insurance to offset some of the risk undertaken by investors in life settlement pools. However, this syndicate was closed and, in any event, its pricing of the insurance offered was a rule-of-thumb approach, not well based in actuarial science.

Kiri Parankirinathan, who is an actuary, solved the pricing problem and has an issued patent (US 6,999,935) that describes a method for calculating a premium for the risk attributable to insureds surviving a specified period. In effect, his patented business method enables what he calls survival risk insurance that pays a benefit if the pool of insured lives—which typically would be part of a life settlement or COLI package of insurance policies—has better mortality than expected. In a sense, this coverage addresses directly the very specific

survival risk created by these funding arrangements that depend on death benefit proceeds following some projected pattern.

Parankirinathan is making good progress in bring an insurance product to market based on his patented business method.

### Who Else Is Moving In?

Parankirinathan's patent was issued on Feb. 14, 2006. He just missed number 7,000,000 by 65, which means he may have filed his application a couple of minutes too early. It turned out the US 7,000,000 was a patent on polysaccharide fibers useful in textile manufacture and was assigned to E. I. du Pont de Nemours and Company.

Of the 21 patents issued during the first half of 2006, 14 were assigned. The patents issued covered insurance administrative processes using electronic data processing systems applicable in all areas of practice, with assignments to companies such as Hewlett-Packard, IBM, Oracle, and Portogo.

A number of patents provided solutions in automobile or health claim processing either to make these processes more efficient or to reduce fraud. One is assigned to Ford Motor Company.

Guardian Life received an assignment on a patent for a method of variable contract administration that matches a bonus investment credit, offered to entice new applicants, to a

withdrawal charge less than the bonus. All of this is tied to level asset-based compensation.

On the patent application side, 33 of the 91 patent applications published during the first six months of 2006 have assignments implying that insurance business-method invention isn't a kitchen-table type of operation. Lehman Brothers, for example, is assigned a patent application dealing with variable annuities. This patent application is on a method for providing guaranteed minimum withdrawal benefit (GMWB) hedging and guaranteed minimum death benefit (GMDB) reinsurance.

It is, I think, worth paying attention to all of this activity. Inventors with a passion for what they're doing and a firm belief that they've got the next big thing are the ones seeking patent protection. Many more companies involved in insurance operations are jumping on board, too, as indicated by the rising number of assignments in this class. Many insurers and companies that support the insurance industry are, no doubt, encouraging their employees' innovative spirits and paying them accordingly. Certainly, experience shows that not every patent will actually be the next big thing. But, experience also shows that next big things are being patented.

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