

# The Limited Monopoly<sup>®</sup>

## *This Christmas, Give... Bitcoin?*

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### High Finance, Low Change

Over the past few years, you have likely seen news media accounts of a new form of money – a digital currency called bitcoin. New inventions and technologies are emerging from the digital world at a staggering rate. But for each unforeseen breakthrough that achieves mass adoption and creates new wealth and opportunities, there are plenty of busts. In this age of social media, it is easy to create the perception of the “Next Big Thing,” without much substance behind it.

Thus in reading early accounts of bitcoin, we gave them just a cursory reading, a sort of “yeah, good luck with that” dismissal. Yet the articles on bitcoin have kept coming, and on a variety of aspects – the underlying computer technology, its volatility as a currency, bitcoin startups and failures, its enablement of criminal enterprises, and political philosophy as it relates to governments, currencies, and central banks.

One thing seems certain – bitcoin, or at least some form of digital currency, is not going away. Computer network communication technology (the Internet) has resulted in massive changes in the past twenty years; and to an even greater extent, portable computers (the smartphone) in just the past five years. All of us have been affected by these changes (and on some days, seemingly not for the better).

The one area that hasn’t changed proportionately is finance. The creation of money and its movements worldwide, in amounts both large and small, and between individuals and institutions, has changed very little compared to other aspects of our lives. The reasons for this are the subject of some pretty intense arguments in political philosophy, as well as the complexities of finance and the statutes and rules that regulate it. We’ll leave those arguments to others, and to other forums.

What seems apparent though, is that within the next five years or so, money and finance may undergo changes comparable in scope to those we’re experiencing in almost every other aspect of our lives. As described recently<sup>1</sup> in “The Uberization of Money” in *The Wall Street Journal*, crowdfunding is becoming a significant source of seed funding for business startups, thanks to an obscure (at that time) provision of the JOBS Act of 2012. Crowdfunding can be attractive for a number of reasons, particularly because it eliminates several “middlemen,” each of which take a cut of the funds raised.

More changes are in the works, and digital currencies are likely to play a significant role in many of them. Thus we thought that it would be interesting to take a look at the patent landscape of bitcoin. First, however, some basics: What is bitcoin?

### What is Money?

When starting to research bitcoin, we are immediately confronted with a more fundamental question: What is money? In the book, *Digital Gold*<sup>2</sup>, author Nathaniel Popper characterizes “Good money” as being “durable, portable, divisible, uniform, and scarce.” Popper further states that, “The essential quality of successful money, through time, was not

*“The token of Claim 1, wherein the token-generating party is a government.” Here is where it gets interesting.*



who issued it... but rather the number of people willing to use it.”

As a fundamental concept, money is an invention. The earliest known usage of the term dates back to Mesopotamia circa 3000 B.C.<sup>3</sup> Money is a token mutually agreed to by two parties as being tender that may be exchanged for a good or service. Since money is an invention, an interesting mental exercise (at least to us) is to draft a patent claim for money. As a first try at it, we might write the following claim:

1. A token issued by a token-generating party to at least a first party, the token having a quantitative value and exchangeable with a second party in return for a good or service from the second party.

We could also draft a business method claim around money, as follows:

2. A method of exchanging a good or service between a first party and second party, the method comprising:  
- generating a plurality of tokens, each of the tokens having a quantitative value;  
- providing a token to the first party; and  
- causing the exchange of the token from the first party to the second party, and the exchange of the good or service from the second party to the first party.

As patent practitioners, we could argue the wording of these claims at length, but for now, they are sufficient for this thought exercise. (This also illustrates another aspect of claim drafting: sometimes, the most difficult claims to draft are for the simplest inventions.)

Having drafted claims for money and its use, we could also draft the following dependent method claim (as well as a corresponding claim dependent upon Claim 1):

3. The method of Claim 2, wherein the token is issued by a government.

Here is where it gets interesting. For much of the past several centuries, money has been issued by governments. In earlier times, the money was “commodity money,” i.e. gold or silver coins that had at least some intrinsic value. In the past century though, governments have issued almost exclusively “fiat money,” i.e., printed currency, through central banks such as the Federal Reserve Bank. Printed currency has no intrinsic value, and instead derives its value by being declared by the government to be “legal tender for all debts public and private.”

This has resulted in a high concentration of power in governments and the central banks, as well as vehement arguments on the consequences of that concentration of power. An analysis of the basic concept of money begs the question: What if the token-generating party in Claim 1 above is “We the People,” instead of a government?

## The Birth of Bitcoin<sup>2,4,5</sup>

Pre-Internet, a world in which a group of people issued their own money would have been impossible, and even as recently as seven years ago, it would have seemed far-fetched. That began to change when Satoshi Nakamoto published an online paper<sup>6</sup> entitled “Bitcoin: A Peer-to-Peer Electronic Cash System” on October 31, 2008. Nakamoto released the bitcoin open source software code in January 2009.

In writing the bitcoin software, Nakamoto solved several key problems with prior “cryptocurrencies,” including record-keeping problems, security problems at both the sending and receiving ends of transactions, and the requirement for a “Trusted Third Party” in any transaction. Moreover, using Satoshi’s software, transactions occur on the order of minutes regardless of the locations worldwide of the transacting parties (as compared to days for current bank transactions), and without the associated transaction fees charged by banks.

A detailed description of how the bitcoin software works is beyond the scope of this column; for details, download Nakamoto’s “white paper” referenced above. (It’s actually pretty interesting reading for technophiles.) In summary, when someone wants to pay for a transaction with bitcoins, he downloads and installs the bitcoin software<sup>7</sup>. All users of the software are connected to a network. All bitcoin transactions are recorded in a public ledger known as the blockchain. When a bitcoin transaction occurs between two parties, which is fully encrypted and anonymous with respect to the transacting parties, users’ computers on the network compete to solve a mathematical algorithm associated with the transaction in a process known as “bitcoin mining.” When the algorithm is solved, the transaction is verified as legitimate, and is entered into the blockchain. Additionally, the user whose computer “won” the mining of that transaction is awarded 50 bitcoins.

Thus new “bitcoin wealth” is continually created by the users of the network. And what exactly is this wealth? It is simply bits of data stored (presumably securely) in the user’s “digital wallet” on his computer. That probably seems like an abstract concept. Bits of data on a computer? How could that have any value? That’s a fair question. Now while you ponder that, pull a dollar out of your wallet, stare at it, and ask this question: Why does this piece of paper have any value?

The answer is, because enough people think it has value, and are therefore willing to accept it as “legal tender for all debts public and private.” Likewise for bitcoin – if enough people reach a consensus that it has value, and are willing to exchange it for goods and services, then it has value. Looked at another way, if you consider Satoshi Nakamoto’s software invention in light of Claims 1 and 2 above, it falls entirely within the scope of those claims. The key difference is, the token-generating party is not a government, as recited in dependent Claim 3.

## Bitcoin Today

In the past few years, bitcoin has grown from a nascent cryptocurrency primarily of interest to libertarians and “change the world” computer geeks to a credible financial instrument that is attracting the attention of Silicon Valley venture capitalists and Wall Street financiers. Bitcoin is also attracting its share of interest from financial regulators and law enforcement in the federal government. This is due in no small part to the highly publicized collapse of the bitcoin exchange Mt. Gox in February 2014, and the November 2013 shutdown of the infamous Silk Road online drug bazaar, which transacted entirely in bitcoins, and

which resulted in federal prison terms for its founder and a corrupt DEA agent involved in the Silk Road investigation.

Bitcoin’s valuation has been highly volatile, beginning with Laszlo Hancz paying 10,000 bitcoins for a Papa John’s pizza in May of 2010 in the first “real world” commercial transaction, to a peak of \$1145 per bitcoin in November 2013. For much of 2015, the exchange rate has fluctuated around \$200-\$250. More recently, however, the rate has recovered to as high as \$450, and at press time, was around \$400, resulting in a market cap of about \$6 billion for all of the bitcoins circulating in the world.

## Bitcoin IP

The next chapters of bitcoin’s story remain to be written, and its future remains to be seen. But as we state above, some major innovations in personal, corporate, and international finance are likely in the winds, whether they occur with bitcoin as an essential element, or another form of digital currency.

That leads us back to the topic that we mentioned above – the bitcoin patent landscape. Any time there is a breakthrough technology, opportunity knocks. Smart and enterprising people invent improvements and new uses for the technology. Although we will have to save the patent landscape topic for a future column, we close with a simple hint as to where things are headed. Nearby is a bar

chart of issued patents and published applications that contain the word “bitcoin.” Things are obviously heating up in the pursuit of bitcoin-related IP.

## Christmas Wishes

So this year, whether you give cash, or your time, or bitcoin, give generously. We wish all of our readers a Merry Christmas and a Happy and Prosperous 2016!

1. *The Wall Street Journal*, Nov. 7-8, 2015.
2. *Digital Gold: Bitcoin and the Inside Story of the Misfits and Millionaires Trying to Reinvent Money*, Nathaniel Popper, Harper 2013.
3. See <https://en.wikipedia.org/wiki/Money>.
4. See also <https://en.wikipedia.org/wiki/Bitcoin>.
5. See also [https://en.wikipedia.org/wiki/Satoshi\\_Nakamoto](https://en.wikipedia.org/wiki/Satoshi_Nakamoto).
6. Available at <https://bitcoin.org/bitcoin.pdf>.
7. Available at <https://bitcoin.org/en/download>.

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