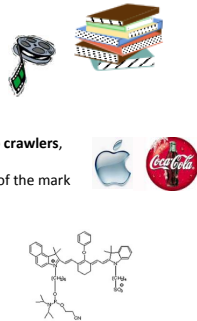


Intellectual Property Issues

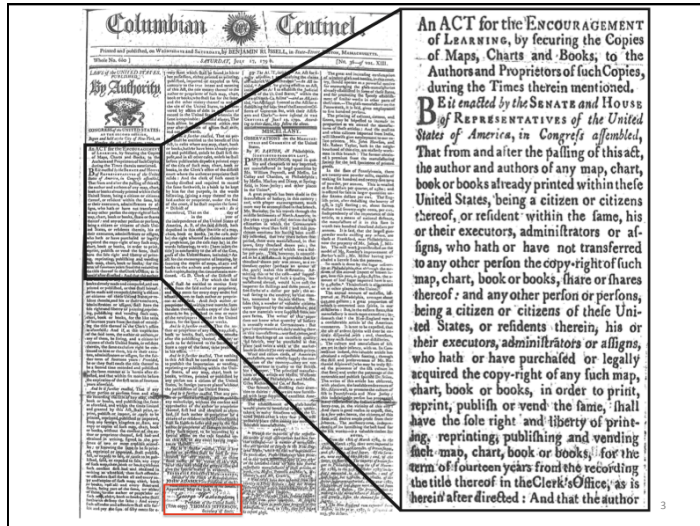
- Copyright
 - Assume everything on the web is copyrighted including text, images, sound, video. Requires permission from the copyright holder to download, copy, distribute.
- Trademarks
 - All famous marks are registered and watched by web crawlers, including logos and design. Domain names that confuse origin or dilute the value of the mark will be challenged by owners.
- Patents
 - Obviously. But for the web might be confusing
 - [Compton's patent](#) on a search method failed but many e-commerce patents are issued.
- Trade Secrets



“If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an **idea**, which an individual may exclusively possess as long as he keeps it to himself; **but the moment it is divulged, it forces itself into the possession of every one**, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. **He who receives an idea from me, receives instructions himself without lessening mine; as he who lights his taper at mine, receives light without darkening me.** That ideas should be freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature . . .”

Thomas Jefferson

2



A Time-limited Monopoly

US Constitution, Article 1, §8:

“The Congress shall have the power ... To promote the Progress of Science and the Useful Arts, by securing for limited Times to **authors** and **inventors** the exclusive Right to their respective **Writings** and **Discoveries.**”

4

The 5 Rights of Copyright Holder

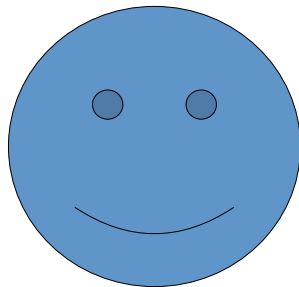
- **To reproduce**
 - Exemption for Libraries, archives, home recordings, temp copy from the web
- **To prepare derivative works**
 - Including abstracts, enhancements, translations, digitizing text
- **To distribute**
 - Exemptions for “face-to-face” instruction but not distance learning
- **To display publicly**
 - Exemption for instructional broadcasting
- **To perform publicly**

Fair Use

Exemption to Copyright Monopoly

- **The Right of the Public to reproduce and distribute without permission for:**
 - Criticism and Parody
 - Commentary
 - News Reporting
 - Teaching, scholarship, Research
 - Home Use (off air video and audio)
- **But claiming “fair use” is not granted automatically!**
- **Determining “Fair Use” is Subject to a 4-Factor Test**
 - Non-profit vs Commercial Use
 - (Small) number of copies made
 - Amount of text copied
 - Effect of Market potential (dilution of value)

Insufficient originality



7

Sufficient originality



8

Derivative work



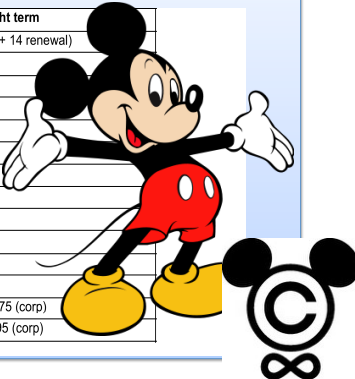
9

Copyright Basics

- **What is Copyrightable**
 - An original work of authorship [low threshold] that is fixed in a tangible form of medium [more than ephemeral].
 - Copyright is automatic (since 1974): No special filing is required
 - © symbol is advised but not required
 - Ignorance is no defense against copyright infringement.
 - Not Copyrightable:
 - Facts, ideas, titles, short phrases, public domain information
- **Who owns the Copyright**
 - The Author unless "work for hire" or assigned to publisher
- **How long does the Copyright lasts**
 - By Author: **Life plus 70 years**
 - By Employer: **95 years from publication or 120 from creation**

Increasing duration of copyright

Year enacted	Max copyright term
1790	28 years (14 + 14 renewal)
1831	42
1909	56
1962	59
1965	61
1967	62
1968	63
1969	64
1970	65
1971	66
1972	68
1974	70
1976	life + 50, or 75 (corp)
1998	life + 70, or 95 (corp)



11

*One Hundred Fifth Congress
of the
United States of America
AT THE SECOND SESSION*

Begun and held at the City of Washington on Tuesday, the twenty-seventh day of January, one thousand nine hundred and ninety-eight
An Act

To amend the provisions of title 17, United States Code, with respect to the duration of copyright, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I—COPYRIGHT TERM EXTENSION

SEC. 101. SHORT TITLE.

This title may be referred to as the 'Sonny Bono Copyright Term Extension Act'.

SEC. 102. DURATION OF COPYRIGHT PROVISIONS.

(a) PREEMPTION WITH RESPECT TO OTHER LAWS- Section 301(c) of title 17, United States Code, is amended by striking 'February 15, 2047' each place it appears and inserting 'February 15, 2067'.

(b) DURATION OF COPYRIGHT: WORKS CREATED ON OR AFTER JANUARY 1, 1978- Section 302 of title 17, United States Code, is amended--

(1) in subsection (a) by striking 'fifty' and inserting '70';

(2) in subsection (b) by striking 'fifty' and inserting '70';

(3) in subsection (c) in the first sentence--

(A) by striking 'seventy-five' and inserting '95'; and

(B) by striking 'one hundred' and inserting '120'; and

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Copyrighted on the Web

Medium	Example	Holder
Modern Text	Screenplays, books, poetry, quotes, journals, newspaper articles	Author or publisher
Images	Stills, video, artwork, logos	Photographer, object owner, artist, architect, trademark company
Sound	Performance rights, mechanical rights, synchronization rights	Lyricist, Performer, Studio, Composer
Software	Patents, university employees, trade secrets to 3rd party	Programmer, university, faculty, students, 3rd party
People (pictured or described)	Actors, Recognizable People, have rights of Publicity, of Privacy, against defamation	Individuals, agents, parents

Trade secret

- Definition
 - Any information that
 - provides a competitive advantage
 - is kept secret
- Limits
 - Essentially none; unlimited lifetime
- Abridged by
 - Stealing the information
 - Unauthorized passing on
- Legally avoided by
 - Independent discovery
 - Emergence into the public domain
 - Reverse engineering

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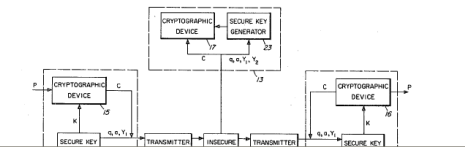
Patent basics

- Definition
 - Application of an idea to create something novel, useful, and non-obvious (prior art)
 - Machines, processes, new forms of matter
 - Covers only the claims specified
 - Provides the right to exclude others from making, selling, using
 - Requires adequate disclosure
- Limits
 - 20 years from date of filing
 - Excludes: math formulas, natural laws, mental steps
- Obtained by:
 - Application to US PTO; expensive, claims examined
 - Can be challenged later
- Abridged by: Any use of application
- Avoided by: Careful search

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United States Patent [19] 4,200,770
 Hellman et al. [45] Apr. 29, 1980

[54] CRYPTOGRAPHIC APPARATUS AND METHOD
 [75] Inventors: Martin E. Hellman, Stanford; Bailey W. Diffie, Berkeley; Ralph C. Merkle, Palo Alto, all of Calif.
 [73] Assignee: Stanford University, Palo Alto, Calif.
 [21] Appl. No.: 830,754
 [22] Filed: Sep. 6, 1977
 [51] Int. Cl.: H04L 9/00
 [52] U.S. Cl.: 178/22; 340/149 R; 375/2; 455/26
 [58] Field of Search: 178/22; 340/149 R
 [56] References Cited
 PUBLICATIONS
 "New Directions in Cryptography", Diffie et al., *IEEE Transactions on Information Theory*, vol. IT-22, No. 6, Nov. 1976.
 Diffie & Hellman, Multi-User Cryptographic Techniques", *AFIPS Conference Proceedings*, vol. 45, pp. 108-112, Jan. 8, 1976.
 Primary Examiner—Howard A. Birmiel
 Attorney, Agent, or Firm—Flehr, Hobbach, Test
 [57] ABSTRACT
 A cryptographic system transmits a computationally secure cryptogram over an insecure communication channel without prearrangement of a cipher key. A secure cipher key is generated by the conversers from transformations of exchanged transformed signals. The conversers each possess a secret signal and exchange an initial transformation of the secret signal with the other converser. The received transformation of the other converser's secret signal is again transformed with the receiving converser's secret signal to generate a secure cipher key. The transformations use non-secret operations that are easily performed but extremely difficult to invert. It is infeasible for an eavesdropper to invert the initial transformation to obtain either conversers' secret signal, or duplicate the latter transformation to obtain the secure cipher key.
 8 Claims, 6 Drawing Figures



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puted for this purpose by using adder 58 to add z to itself, using comparator 66 to determine if the result, 2z, is less than q, and using subtractor 57 for subtracting q from 2z if the result is not less than q. The result, 2z mod q is then stored in the Z register 52. The rightmost bit, containing y₀, of the Y register 51 is then examined, as before, and the process repeats.

This process is repeated a maximum of k times or until the Y register 51 contains all 0's, at which point xy modulo q is stored in the P register 54.

As an example of these operations, consider the problem of computing 7x7 modulo 23 needed to produce the second state of the A register when 7² mod 23 was computed. The following steps show the successive contents of the Y, Z and P registers which result in the answer 7x7=3 modulo 23.

i	Y (in binary)	Z	P
0	0011	0	0
1	0001	14	0 + 7 = 7
2	0000	5	7 + 14 = 21
3	0000	19	21 + 6 = 3 mod 23

FIG. 4 depicts an implementation of an adder 58 for adding two k bit numbers p and z. The numbers are presented one bit at a time to the device, low order bit first, and the delay element is initially set to 0. (The delay represents the binary carry bit.) The AND gate 61 determines if the carry bit should be a one based on p_i and z_i both being 1 and the AND gate 62 determines if the carry should be a 1 based on the previous carry being a 1 and one of p_i or z_i being 1. If either of these two conditions is met, the OR gate 63 has an output of 1 indicating a carry to the next stage. The two exclusive-OR (XOR) gates 64 and 65 determine the ith bit of the sum, s_i, as the modulo-2 sum of p_i, z_i and the carry 35 bit from the previous stage. The delay 66 stores the previous carry bit. Typical parts for implementing these gates and the delay are SN7400, SN7404, and SN7474.

FIG. 5 depicts an implementation of a comparator 56 for comparing two numbers p and q. The numbers are presented one bit at a time, high order bit first. If neither the p < q nor the p > q outputs have been triggered after the last bits p₀ and q₀ have been presented, then p = q. The first triggering of either the p < q or the p > q output causes the comparison operation to cease. The two AND gates 71 and 72 each have one input inverted (denoted by a circle at the input). An SN7400 and SN7404 provide all of the needed logic circuits.

There are many methods for implementing this form of the invention. The signals q and a may be public knowledge rather than generated by the key source 25. Further, it should be appreciated that the present invention has the capability of being modified by the use of additional transformations or exchanges of signals.

In some applications, it will prove valuable to have the ith converter on the system generate Y_i as above and place it in a public file or directory rather than transmitting it to another converter with whom he wishes to communicate. Then two converters i and j who wish to establish a secure channel will use K_i = Y_i mod q = Y_j mod q as their key. The advantage is that converter i, having once proved his identity to the system through the use of his driver's license, fingerprint, etc., can prove his identity to converter j by his ability to compute K_i and encrypt data with it.

Variations on the above described embodiment are possible. For example, in the above method based on logarithms modulo q, n-dimensional vectors, each of whose components are between 0 and q-1 could also be used. Then all operations are performed in the finite field with qⁿ elements, which operations are well described in the literature. Thus, although the best mode contemplated for carrying out the present invention has been herein shown and described, it will be apparent that modification and variation may be made without departing from what is regarded to be the subject matter of this invention.

What is claimed is:

1. A secure key generator comprising:
 - a first input connected to receive an applied first signal;
 - a second input connected to receive an applied second signal;
 - a first output;
 - a second output; and
 - means for generating at the first output a third signal, that is a transformation of said first signal and which transformation is infeasible to invert, and for generating at the second output a fourth signal, that is a transformation of said second signal with said first signal, which represents a secure key and is infeasible to generate solely with said second signal and said third signal.
2. In a method of communicating securely over an insecure communication channel of the type which communicates a message from a transmitter to a receiver, the improvement characterized by:

United States Patent [19] (11) Patent Number: 6,004,596
Kretschman et al. [43] Date of Patent: Dec. 21, 1999

5,003,779 12/19/88 Method 426/275
OTHER PUBLICATIONS
"50 Crust Sandwiches", Carol Henslip, pp. 81-84, 86/85, 1984.
Primary Examiner—Lisa Tinn
Attorney, Agent, or Firm—Vickers, Daniels & Young [75]

ABSTRACT
A sealed crustless sandwich for providing a convenient sandwich without an outer crust which can be stored for long periods of time without a crust filling from baking materials. The sandwich includes a lower bread portion, an upper bread portion, an upper filling and a lower filling between the lower and upper bread portions, a center filling nested between the upper and lower fillings, and a crimped edge along an inner perimeter of the bread portions for sealing the fillings in place. The upper and lower fillings are preferably comprised of peanut butter and the center filling is comprised of jelly and jam jelly. The center filling is prevented from radiating outwardly into and through the bread portions from the surrounding peanut butter.

References Cited
U.S. PATENT DOCUMENTS
3,080,843 4/16/63 Cooper 426/275
4,000,008 9/2/72 Dierks 426/275
3,757,823 10/1/75 Whelan et al 426/275
3,700,020 10/1/72 Baker et al 426/275
3,062,344 1/15/75 Zales 426/244
4,262,256 5/18/79 Kohler et al 426/275

10 Claims, 4 Drawing Sheets

be resorted to, falling within the scope of the invention.

We claim:

1. A sealed crustless sandwich, comprising:
 - a first bread layer having a first perimeter surface coplanar to a contact surface;
 - at least one filling of an edible food juxtaposed to said contact surface;
 - a second bread layer juxtaposed to said at least one filling opposite of said first bread layer, wherein said second bread layer includes a second perimeter surface similar to said first perimeter surface;
 - a crimped edge directly between said first perimeter surface and said second perimeter surface for sealing said at least one filling between said first bread layer and said second bread layer;
 - wherein a crust portion of said first bread layer and said second bread layer has been removed.
2. The sealed crustless sandwich of claim 1, wherein said

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LAUNCH

Smuckers in jam over sandwich
April 6: J.M. Smucker Co. is trying to defend its patent on its version of the classic peanut butter and jelly sandwich. NBC's Pete Williams reports.

By Pete Williams
Justice correspondent
NBC News
Updated: 7:59 p.m. ET April 6, 2005

It's an American staple, and it can be made about as many ways as there are lunch boxes.

The classic is on white bread, but it

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