

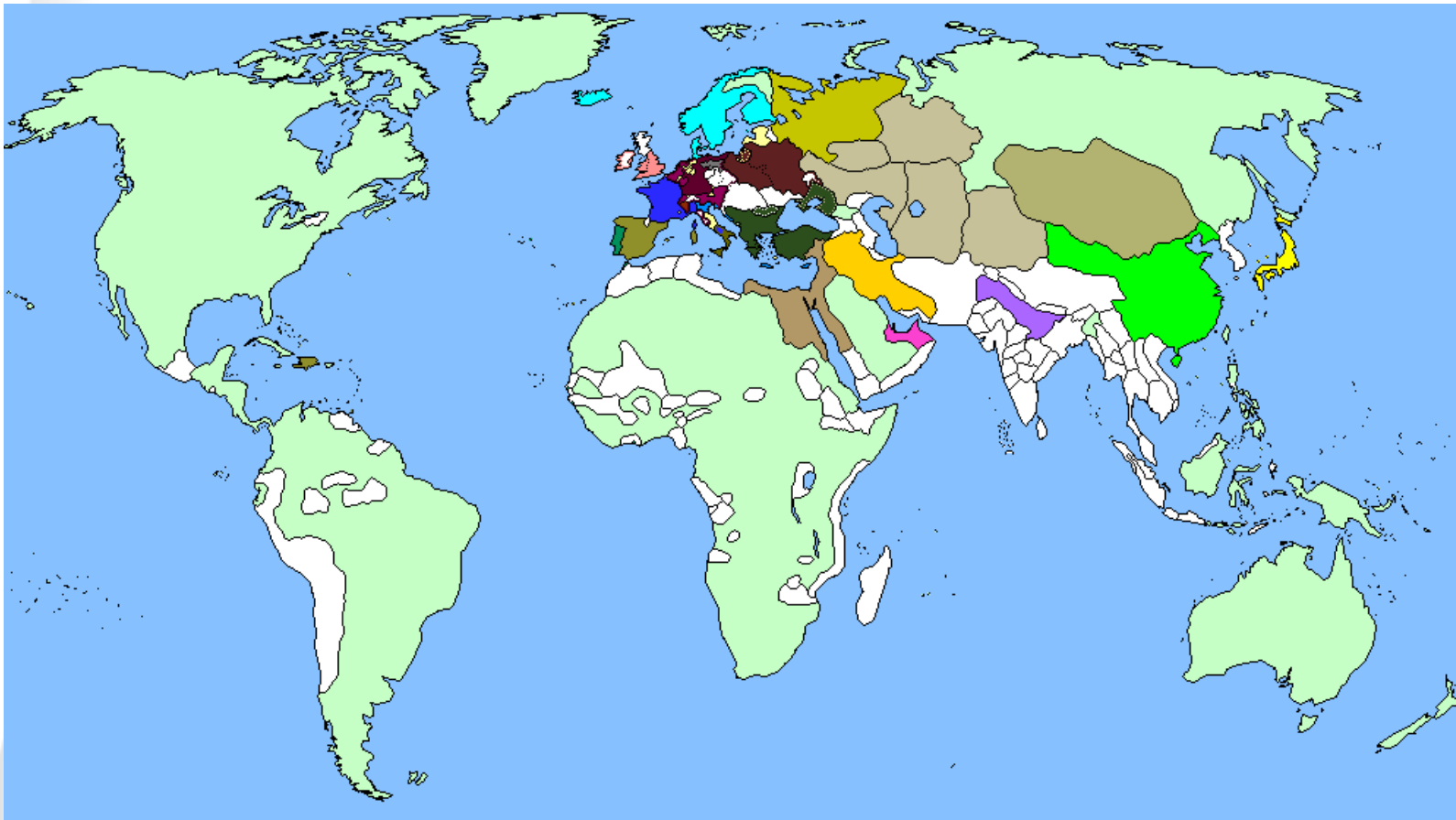
A Brief, non-Legal History of Technology Transfer

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Circulation of Ideas and Know-how: a Lever of Riches

- Freedom
- Rule of Law (*not* of Lawyers!)
- Right to Property
 - Including intangibles
 - Balance between monopoly rights and the public interest in the spread of freely usable knowledge

The World in 1500 A.D.



The World in 1500 A.D.

- Ming China
- Muslim World (Ottoman Empire, Mogul Empire, Persian Empire, Khanates, West African Islamic States)
- Japan
- Muscovy Russia
- The Outsider: Western Europe

Ming China

Admiral Cheng Ho expeditions
(1405 – 1433)



Ming China

- Haijin Edict
- Pervasive conservative bureaucracy
- Suspicion of traders, esp. maritime
- Developments serve the State's Purposes:
 - Easily started
 - Easily stopped

Ottoman Empire

Repeatedly besieged Vienna
(1529 – 1683)



Ottoman Empire

- Highly centralized & despotic
- Severe orthodoxy
- Extended pervasive bureaucracy
 - Undermines innovation
 - Prefers conservatism
- Religious Obscurantism

Ottoman Empire

In 1580 the state Observatory was destroyed under accusation of causing a plague



The Great Divergence

How the circulation of ideas and know-how was the key to Europe's rise to dominance

The European Scene

- Highly fragmented
- Competing powers with shifting alliances
- Failed bids for mastery of the continent (Habsburg, Spain, France)
- Religious diversity:
 - Religious wars
 - The Spanish Inquisition
 - Intolerance of protestants

Europe in 1500



Political Fragmentation

- Safe from single-stroke conquest (Aztec Mexico, Sassanid Empire, Inca Peru)
- Free thinkers, undesired innovators and traders could find protection in neighboring states
- Arms race

Examples

- Printing: diffusion of books of scientific (Newton, Galileo) or empirical content (Mariano Giacomo Taccola, Georgious Agricola, Lazarus Ercker)
- Sails (caravels, galleons, ships of the line)
- Guns (bronze, iron, field artillery)
- Watches (advance in mechanics)

Property Rights

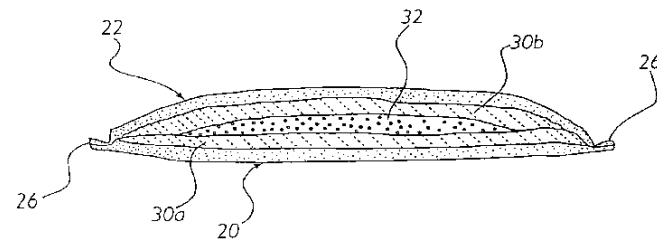
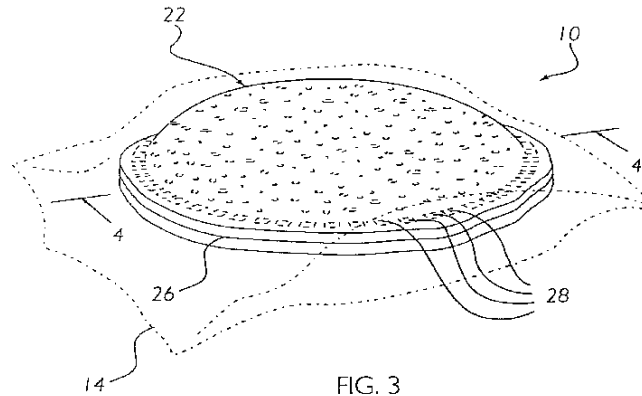
- Tangibles
 - Why invest in capital and labor to create wealth that can be confiscated?
- Intangibles
 - Why invest in research and development if a latecomer can rip it off and effectively steal it from you?

Property Rights – The Role of Patents

- Promoting innovation or undermining it?
- The Industrial Revolution and the patent system
- James Watt: “*without patents, the life of the inventor is not convenient*”
- Are investors attracted by non-patentable inventions?

Sandwich Patent

- 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.



Thank you
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