

Authors and patentees in aeronautics and aviation, 1880-1914

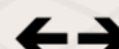
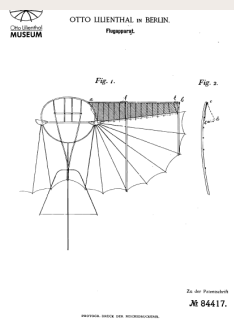
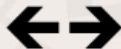
Peter B. Meyer

U.S. Bureau of Labor Statistics

Views and findings in this work represent only the author

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July 28, 2021



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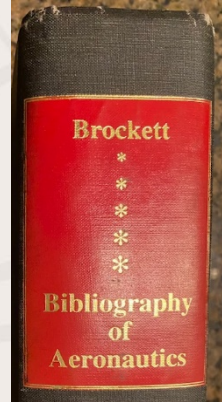
Patent GB-1909-28837

Sources

- Nation (1915) 273
- Original patent document and bibliography entry on espacenet
- Inventor location: 22 Birkdale, Stettin, Germany
- Inventor occupation: Engineer

Year filed	1909
Year granted	1910
Office	GB
Patent number	28837
Inventors	Rudolf Wagner
Inventor country	DE
Applicant person	Rudolf Wagner
Applicant firm	
Applicant type	INDIV
Applicant is inventor?	Yes
Original title	Improvements in or relating to Counter-Propellers for Water and Air Vehicles
English title	Improvements in or relating to Counter-Propellers for Water and Air Vehicles
Tech fields	Propellers, Driving, Subsystem, Design, Aerodynamics
Filing date	19091209

Data



Context

- 19th century: Ballooning clubs & journals
 - Aeronautics as a hobby
 - Maybe hopeless, useless, dangerous
 - But growing
 - Shared designs / Open source practices
- 1903-6: Powered gliders, first airplanes
- Patent conflicts begin
- 1908-11: Big exhibitions.
- New manufacturers
- 1912-14: Shakeout? Decline in patents
- 1914 World War I begins

Data from pre-invention to industry to war period.

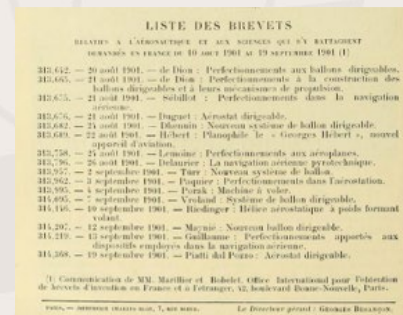
Sources – EPO/Espacenet, patent offices, journals of the time, bibliographies, historical books, Wikipedia, Web sites

Our wiki has a page for each:

- 15,000 patents
- 20,000 publications
- 400 companies
- 900 clubs, govt, university orgs
- 100 exhibitions, conferences, and prizes
- 1000 aero inventors, patentees, and authors
- 600 letters and telegrams

Goal: Incorporate micro-histories of each item
Completeness to the extent possible, globally

➔ Show counts, trends, statistics



Patent US-1889-398984

Human flying apparatus attached wings underneath a gas balloon

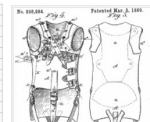
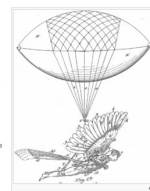
Identical museum's Saker notes:

- Spacing built in model in the shape of a flying human. The flying apparatus consists of wings and a tail, which are connected to the plane with a jacket like construction. Straps in the pelvic area pass between the legs on the back. The wings attached to the wrist are provided by hollow joints. They are attached to the 13 springs along the direction of flight. The wings are to be flapped by the movement of the arms. The tail was operable. The model is to be made anemometry by a balloon. It is located in the Washington DC National Air and Space Museum. Spacing patented the model. Biograph: Quaker, G.S. 43 p. 108 & 117
- Saker cites V. Woodman. The way to Kitty Hawk. Amsterdam 1981, p. 63, and reproduces the original file as "Pflaegherapparat"
- Inventor location: Russia, CO

Sources [id#]

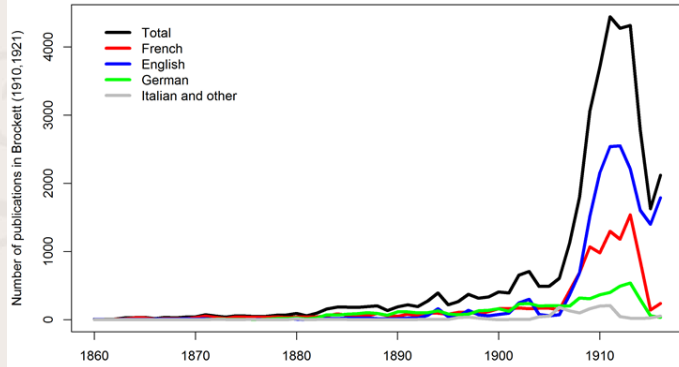
- Original patent document [@](#) and USPTO classification metadata [@](#) of US PTO site
- Patent abstract document [@](#) and bibliographic info [@](#) on espacenet
- Patent 398984 [@](#) at google patents
- Active record of the patent [@](#) at the Identical museum patents web site
- Short's DB
- Other sources of information about this patent are on the Web

Year filed	1889
Year granted	1890
Office	US
Patent number	398984
Inventor	Heinrich August Spacing
Inventor country	US
Applicant person	
Applicant firm	
Applicant type	
Applicant is Inventor?	Yes
Original site	Patentarchive



(3) Similar publications boom

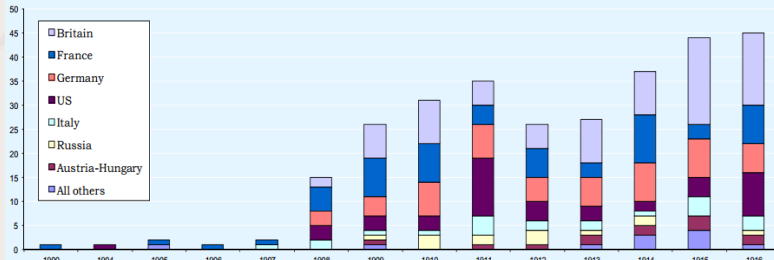
Aeronautics and aviation publications by year, 1860-1916



(4) Wave of startup firms 1908-1912

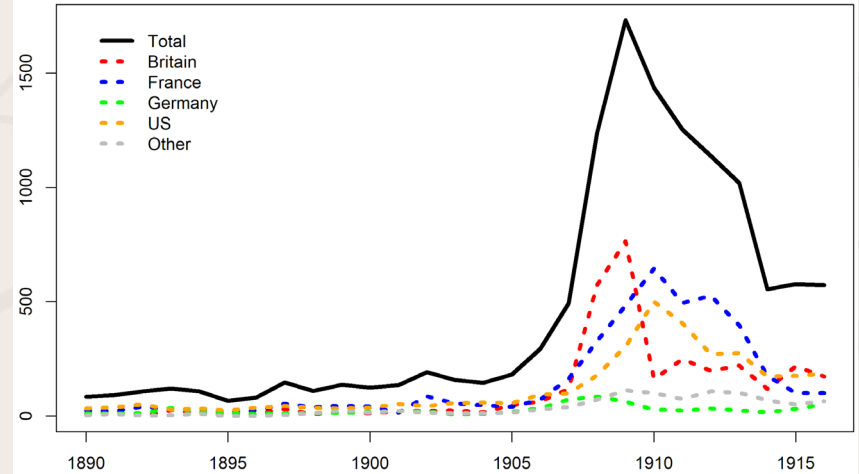
Number of entrant firms by year of first investment

(Sources: Gunston 1993 and 2005; Smithsonian Directory)

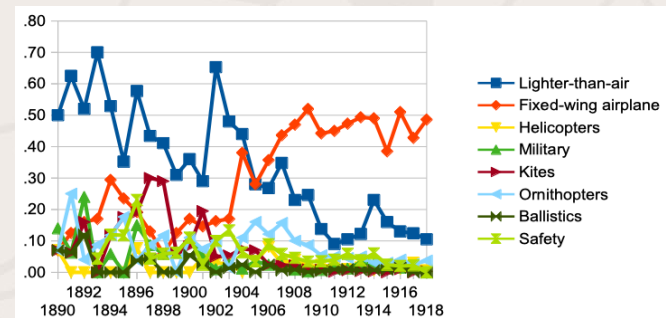


(1) Patents boom 1906-1910

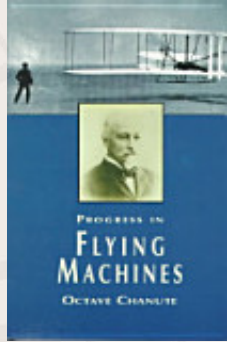
Aeronautical and aviation patents by year filed, 1890-1916



(2) Patent designs shift from balloons to fixed wings



Individuals



We can identify “giants” who are cited most, *before* airplane invented

- Maxim, Lilienthal, Pénau, Mouillard, Hargrave, Moy, Le Bris, Langley, Wenham, Phillips – as cited by Chanute (1894)

We have some info on 1036 individuals as of this writing (not just “giants”)

For 557 of these we have an **occupation**, usually from patent specification

- About half described themselves as “**engineers**” (227)
- 25 meteorologists; 25 as “industrialist” or “manufacturer”
- Others: “gentlemen”; merchants; physicians; dentists; chemists; professors; mechanics
- Some were professional balloon-makers or lighter-than-air gas suppliers
- Later: “aeroplane manufacturer”, designer, or mechanic

Countries: of 881 persons so far: 221 US, 204 FR, 141 GB, 88 DE, 50 AT or AH, 30 IT, 20 CH, many others

Some individuals had >40 patents. Many patentees also published articles and we are matching names
Few of these “tinkerers” founded companies; more founders were industrialists already

Some conclusions so far

- There were vast numbers of aero patents and publications by 1916
 - Many of the 15,000 patents are duplicative ; we can identify some of those
- The wiki database approach integrates precise micro-histories with macro-histories
 - E.g. networks and shifts among activity re balloons, ornithopters, fixed-wings, helicopters, etc.
 - Who started firms; whether aero company founders had a history in the aero field
- Most participants had some technical education; about half were engineers
- They shared designs and information
- They networked through clubs, conferences, visits, exhibitions, letters, and journals